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Springfield,
Chelmsford.

J. V. Hammond,
Lincoln's Inn

THE

ENTOMOLOGIST

CONDUCTED BY

EDWARD NEWMAN.

VOLUME V.

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"Her divine skill taught me this,
'THAT FROM EVERYTHING I SAW
I COULD SOME INSTRUCTION DRAW,
AND RAISE PLEASURE TO THE HEIGHT,
THROUGH THE MEANEST OBJECT'S SIGHT.'"
G. Wither.

"Whatever creeps the ground,
Insect or worm; those waved their limber fans
For wings, and smallest lineaments exact
In all the liveries decked of summer's pride
With spots of gold and purple, azure and green."
Milton.

"The insect youth are on the wing,
Eager to taste the honied spring,
And float amid the liquid noon:
Some lightly o'er the current skim,
Some show their gaily-gilded trim
Quick glancing in the sun."
Gray.

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Life-histories of Sawflies inhabiting Britain. By CHARLES HEALY. The Characters of the Imago by EDWARD NEWMAN.

Family DRUIDÆ, *Newman*.

Consisting of minute sawflies whose larvæ mine between the cuticles of leaves, feeding only on the parenchyma.

PHYLLOTOMA MELLITA, *Newman*.

Head black and very shining: antennæ shorter than the thorax, slender, of uniform thickness with the exception of the terminal joint, which is rather more slender, conical and pointed; the basal half of the antennæ is glabrous, the apical half pilose; but the pile is very close and short; the basal portion is almost pure black, the apical half pitchy black; they are altogether paler below than above: the mouth is pitchy red; the palpi honey-yellow.

Thorax intensely shining black, with a conspicuous white tubercle at the base of each fore wing: sternum black and shining.

Abdomen black, shining, inclined to pitchy in the male, dull black in the female; sheaths of the saw black and pilose; the saw itself honey-yellow.

Fore wings transparent, with a median transverse smoky cloud very vague and indistinct; stigma large, semicircular, smoke-coloured; costal margin from the base to the stigma dull yellow; all the rays smoke-coloured.

Legs honey-yellow except at the base of femora, where they are smoky black.

Length of the body ·15 inch; expanse of the wings ·325 inch.—*E. N.*

A Life-history of Phyllotoma mellita, Newman. — Early in the month of May the imagos of this species of sawfly may be beaten out of birch-bushes, or, should the weather be at all windy, may be easily captured whilst sitting on the birch-leaves. At this period of the year we notice that many of the leaves are in a blotched condition, and that the "frass" contained within the blotched part of the leaf has the appearance of a small quantity of black thread: these blotches are produced by the larvæ of micro-lepidopterous insects of the genus Micropteryx. Early in the following month two other kinds of blotches are noticeable in the birch-leaves: these latter are the work of two species of sawfly larvæ. The names of the insects that these two different blotch-making caterpillars produce are, first, Phyllotoma mellita, and, secondly, Phyllotoma fuliginosa? an account of whose life-history appeared in No. 63 of the 'Entomologist' (Entom. iv. 225). From its larger size and different decorative markings no difficulty will be experienced in separating the larva of P. mellita from that of P. fuliginosa?

P. mellita, which is the third species of tenthredinidous larva that has been found to inhabit the interior of birch-leaves, lays its egg on the upper surface of the leaf. The young larva begins operations by excavating a minute greenish-coloured blotch: this is a shade lighter in colour than the general tone of the leaf, and is always situated either at the tip, side or base of the leaf, never in the central parts: this birth-place of the larva is left crowded with "frass," which in the mines of some individuals is observed to be wholly black, whilst in others it consists of a mixture of black and brown. The larva has a reddish-brown coloured mouth; its head is pale brown, with a darker tint on the cheeks; the back of the 2nd segment is white, and has a broad somewhat horseshoe-shaped plate of a pitchy brown colour; the top of the dorsal surface of the 3rd segment is crossed by a thin interrupted black plate; the body is white, but has a greenish tint imparted to it by the fluid contained within the dorsal vessel. The larva has twenty-two organs of progression, namely, six thoracic, fourteen ventral, and two anal; its 5th and 13th segments are not furnished with legs; its thoracic legs are white, with black rings; the claws are black; the inferior surface of the 2nd, 3rd and 4th segments each possess a shining jet-black plate, that on the 2nd segment being much the largest of the three, the 5th and 6th segments having only a central black dot; the ventral legs are white, and have the front part of the base arched over by a semicircular black band; the penultimate segment is decorated with two small black dots, which are placed in the centre of that segment; the anal legs are more nearly surrounded, and that by a thicker black band, than any other internal-feeding tenthredinidous larva that I have met with. In addition to all the above markings, there are a number of little shining black dots arranged along the sides of the body; for instance, the 2nd segment has a black spot on each side; sometimes there are three black spots on the 3rd segment, two at the top and one at the bottom; on the other hand, some individuals have quite a cluster of little spots on the sides of this segment: the 4th segment has three black spots arranged in a line down the middle; the sides of the remaining segments are each decorated with four black spots, the anterior pair being smaller than the others. After slightly extending its blotch the larva prepares to enter upon its first ecdysis; it leaves off feeding and becomes motionless; by and by it throws off its old skin in an entire form: it is now quite spotless, but its markings slowly reappear, the creature simultaneously regaining its strength; and if it is annoyed at this time it gives its body a slight angry jerk, but it is unable to move its head; it soon, however, recovers itself, and resumes its feeding.

The female parent, in depositing her eggs for the first brood of larvæ, very often only places a single egg on a leaf, and the larva consequently becomes a solitary feeder; it has, however, been noticed that a larva so situated will sometimes consume the whole interior of the leaf before it becomes full-fed. In the autumnal brood it is a somewhat common occurrence to meet with birch-leaves dotted with as many as seven little blotches, arranged along the base, sides and tip of the leaf, each little blotch being occupied by a larval tenant. One leaf having to give sustenance to so many active little mouths, as a natural consequence very soon becomes deprived of its parenchyma, the cavity thus caused in the leaf being partially filled up with the cast-off skins and "frass" of the contained larvæ. When the second ecdysis has occurred, the caterpillar of P. mellita is about five lines long, and, like all other leaf-mining Tenthredo larvæ, this species lies inside its mine on its back. The frass is ejected in little pellets, which are scattered about the mined part of the leaf: this mostly takes place all through its larval life, but instances occur now and then, when the larva is about half-grown, that the pellets of frass are observed to be connected together, reminding one, at first sight, of a string of lilliputian sausages: from time to time the movements of the feeding larva cause the string of pellets to assume a waved and at other times an arched form; at certain periods short lengths of the cord of pellets break away from the main cord by their own weight, and for a while are permitted to remain in various parts of the mine, but after a time the larva, as though animated with a desire to keep its mined abode clean and tidy, is seen to go in search of the broken-off portions of frass, and by a few dexterous movements of its posterior segments to collect and arrange them into a circular-shaped heap; and from the circumstance of most of the pellets of frass being linked together, they, by the peculiar movements of its body, finally become arranged, and assume almost as much regularity as a coil of chain: the small ligatures that connect the pellets of frass together I believe to be composed of short thin threads of the same substance, as it seems scarcely feasible to suppose that they can by any possibility consist of silk. It should, however, be observed that this remarkable arrangement of the frass is not peculiar to this Tenthredo larva, for the same interesting fact is at times noticeable in the economy of those sawfly larvæ which feed on the elm and wych-elm (Fenusa Ulmi, *Newm.*), the frass of the alder-mining Tenthredo (Phyllotoma microcephala, *Klug*) likewise at times assuming the same appearance, and the frass of the little tenthredinidous larva that blotches the leaves of the maple and sycamore (P. Aceris) at times looking for all the world like a number of minute black beads strung together on a thread. When about three-parts grown the larva of P. mellita, if disturbed, is much agitated, and lashes its body about furiously, travelling all over its mined abode. It moults four times, and some individuals, after the third moult, have, in addition to their other embellishments, two black dots on the back of each of the 4th and 5th segments, the spots on the 5th segment being much smaller and encircled by a thin black ring; the black rings, however, in some instances are absent altogether: others, on arriving at the adult state, instead of having the ordinary horseshoe-like plate on the back of the 2nd segment, possess two squarish-shaped patches of a dark pitchy brown. This species, in common with all other leaf-mining Tenthredo caterpillars with which I am at present acquainted, though amply furnished with organs of locomotion, evinces no inclination to leave one leaf and enter another; but should the supply of food fall short of the creature's requirements, in consequence of the leaf being peopled by too many larvæ or from any other cause, it quits the leaf, and in time there is produced a proportionally small imago. When it has become full-fed it casts its skin for the last time, and then this last-thrown-off tegument may often be seen lying inside the blotched leaf, retaining its shape as though the larva had not quitted it. When full-grown the body has a yellowish tone, its mouth is brown, the eye-spots are black, and on the dorsal surface of some of the segments four dusky marks are perceptible as they faintly shadow themselves through the skin, the posterior pair of these dusky markings being the largest; some individuals, however, differ with respect to these markings, their 6th, 7th, 8th, 9th, 10th, 11th, 12th and 13th segments having only one dusky mark, and that situated at the base of each of the above-mentioned segments: when irritated at this period of its existence the larva partially curls up its body, but straightens itself the next instant: no emission of fluid has been observed to proceed from its spiracles. The full-grown larva averages from 9 to 10½ lines in length. After remaining in its mine in an inactive state for a time, it bites a hole either in the upper or under skin of the leaf, and falls to the ground; never under any circumstances has it been observed to construct its cocoon inside the mined leaf; it always enters the ground to undergo pupation: the caterpillars of the first brood continue feeding till about the middle of June. After the larva of the first brood has laid in its cocoon for a certain period its body becomes dull white, and at the appointed time it passes slowly into the pupa form; the body is then usually of a yellow colour, but the bodies of some pupæ are of an orange tint: the organs of the mouth, the eyes both simple and compound, as well as the antennæ and legs, are glassy white; the compound eyes by degrees acquire a brown tint, and by slow stages finally settle down to a shining jet-black; the ocelli, which are arranged on the crown of the head in the form of a triangle, undergo a similar coloration: the next change observable is that the tips of the upper jaws become suffused with a pink tint, and a day or so afterwards a darkish blotch is noticeable in the interior of the thorax; this at first has but a faint shadowy appearance, but slowly increases in density of tint: we then notice that the knees assume a pale straw-colour, and in time the dark pigmentary matter travels all over the back of the thorax, staining it quite black: the dorsal surface of the first pair of abdominal segments by this time are much discoloured with black colouring matter, and the sides of the remaining segments are considerably dusted with darkish, the base of the same segments becoming dark-tinted, the legs gradually receiving their yellow tint. The pupa, on being placed on its breast, exhibits signs of life by gently swaying its abdomen about: the contained pigmentary matter slowly spreads itself over all parts of the abdominal segments, and ultimately turns to a shining black: the back part of the head has now become black, the front portion is, however, only of a darkish hue; the feet receive a portion of their coloration, and the wings have acquired their smoky fascia; the antennæ change from white to pale straw-colour, afterwards deepening into black: after this all parts of the future imago settle down to their final colours. The time at length arrives for it to emerge: this it effects by cutting a small round hole in its cocoon, through which it creeps, and enters upon the pleasures of its new phase of existence.

The second brood of larvæ may be collected during the months of August, September, October, and the early part of November; in October they are very abundant. This season a couple of young birches were observed at Shirley, in Surrey, the leaves, in consequence of their having been deprived by these larvæ of their green parenchyma, had at a distance quite a whitish appearance. Some of the second brood of larvæ produce the perfect insects in September: the greater number remain unchanged in their cocoons until the following April before they begin to enter upon their pupation, the first specimens of the perfect insects making their appearance late in April, other individuals coming out of their cocoons during June.

The parasite of this species of Tenthredo spins up inside the blotched leaf.—*C. Healy; 74, Napier Street, Hoxton.*

Notes on British Coleoptera. By G. R. Crotch, Esq.

1. On the Genus Triplax.

The rediscovery of one of Stephens's long-lost species will make an analysis of this genus the more useful, and perhaps lead to the identification of the other two. The diagnoses are compiled from M. Bedel's monograph in the 'Abeille.'

A. Head and scutellum black.

1. T. melanocephala, *Latr.* (ruficollis, *Steph.*) Black; thorax and legs red; antennæ pitchy red, with the intermediate joints very close, moniliform and subequal. Long. 2 lin. Said by Stephens to have been taken near Windsor in June.

(The only other black-headed species is T. collaris, *Schall.*, which is oval, with the last joint of the palpi much dilated, and the antennæ of a clear red, with a brownish club.)

B. Head and scutellum red.

2. T. ænea, *Schall.* Bright red; elytra bluish green; antennæ piceous. Long. 2 lin. Common. The colour of the elytra at once distinguishes this species. The variety bicolor of M. Bedel is not a variety, but merely an old *greased* specimen.

(The T. Gyllenhalii (bicolor, *Gyll. nec Marsh.*) is an oval species, with black elytra and dilated palpi: it occurs in Sweden, and will probably be found here eventually.)

C. Head red; scutellum black.

3. T. russica, *Linn.* Ferruginous; scutellum, elytra, antennæ and breast beneath black. Long. $2\frac{1}{2}$—3 lin. Very abundant; sometimes in large numbers under bark in winter.

4. T. Lacordairii, *Crotch* (ruficollis, *Lacord. nec Steph.*) Resembling the preceding, but about half the size, and more parallel; the abdomen also is black. This was placed in his

collection by Stephens as bicolor, and figured by him under that name. He appears to have taken it at Coombe Wood, and it has been recently found near Erith by Dr. Power and Mr. Champion.

5. T. rufipes, *Fabr.* Short, ovate, shining black; head, thorax and legs pale red. Long. 1¾ lin. Recorded by Mr. Stephens from Windsor and Coombe Wood. Its short ovate form will at once distinguish it.

(T. lepida, *Fald.*, appears to be very near this species, but the antennæ are entirely red the, club being dark in T. rufipes; the third joint of the antennæ is much shorter, about equal to the fourth. It occurs near Paris and in Sweden, &c.)

These species all occur in fungus on old trees, generally in the spring and early summer, and when one is found in a fungus others may often be discovered in little crevices of bark on other parts of the tree.

The genus Engis, which comes next to this in our lists, is represented by two species only with us.

1. E. rufifrons, *Fabr.* Pitchy black, shining; head, legs and a humeral spot on the elytra dull red. Very common in Fungi everywhere.

2. E. humeralis, *Fabr.* Head, thorax, legs and humeral spot on the elytra red; the rest black. Rarer; I have recently found it near Brandon, in Norfolk.

Besides these, two others might be expected from their European range:—

E. bipustulata, *F.* Entirely black; legs and a humeral spot on the elytra bright red. Larger than the common species.

E. glabra, *Schall.* (sanguinicollis, *F.*) Black; thorax, legs and two spots on each elytron bright red.

This last is now formed into a new genus (Comboceru, *Bedel*), from the construction of its antennæ and tarsi.

2. On the Genus Rhynchites.

The following remarks are extracted from the careful monograph of this genus by M. Desbrocher de Loges, which has recently appeared in the 'Abeille,' and will serve to clear up the smaller blue species, which are often mixed in collections.

Division I. (Byctiscus, *Thoms.*) Posterior coxæ suboval, not nearly reaching the episterna, which are very broad. The only two species are conspicuous by their glabrous very brilliant surface and the curious spine on the thorax of the male.

1. R. Betuleti, *Fabr.* Glabrous, very shining, brilliant golden green or blue, passing through all the intermediate tints; thorax moderately punctured; elytra closely punctured, with the punctures arranged in rows. Long. 3½—4½ lin. Generally common.

2. R. Populi, *Linn.* Closely resembling the preceding, but nearly a half smaller, and broader; constantly golden green above and dark blue beneath. Long. 2—3¼ lin. Less abundant than the preceding.

Division II. (Rhynchites *proper.*) Posterior coxæ transverse, reaching the episterna, which are moderately narrow.

A. Size large (4—5 lin.); brilliant green or cupreous, pubescent.

3. R. auratus, *Scop.* Golden green, coppery, or even dark violet, pubescent; thorax rugosely punctate; elytra very closely punctate, with rows of larger punctures. Long. 4—5 lin. Birch Wood, on Prunus spinosa; very rare. *Male.*—Thorax armed with a spine, as in R. Betuleti.

4. R. Bacchus, *Linn.* Generally brilliant purple or coppery, rarely green; closely resembling the preceding, but the thorax simple in both sexes; the rostrum entirely violet, and the colour is generally different. Monk's Wood; and in several of the old collections, but very rare.

B. Colour testaceous.

5. R. purpureus, *Linn.* 1758 (æquatus, *Linn.* 1767, *Desb.*) Obscurely æneous, thickly punctate and pubescent; elytra red; suture often darker, deeply striate-punctate; rostrum very elongate. Long. 1½—2½ lin. Very abundant in whitethorn flowers in the spring.

6. R. cæruleocephalus, *Schall.* Violet; thorax and elytra testaceous, the latter punctate-striate. Long. 3 lin. One specimen in the British Museum is supposed to have been

taken at Windsor, but none of a little group of doubtful species recorded from that locality have ever been confirmed.

C. Colour bronzed or cupreous, occasionally green.

7. R. cupreus, *Linn.* Obscurely æneous, above cupreous, strongly punctured; elytra deeply striate-punctate, interstices deeply punctured, with no short sutural stria. Long. 2½—3 lin. Local; sometimes not rare in the North on flowers of mountain ash.

8. R. æneo-virens, *Marsh.* Æneous, pubescent, sometimes bluish green; rostrum very elongate; elytra deeply punctate-striate, interstices narrow, impunctate, at the base with a short sutural stria. Long. 1¼—2 lin. Not rare.

D. Colour blue, occasionally greenish blue.

a. Size moderate; elytra nearly quadrate; rostrum pubescent, much longer than head.

9. R. conicus, *Ill.* Deep blue, rarely greenish, pubescent; thorax coarsely punctured; elytra deeply punctate-striate; interstices with a row of punctures; *no sutural stria.* Long. 1½—2 lin. Not rare.

(R. parellinus, *Sch.*, which resembles this in the absence of a sutural stria, is twice the size, darker, with a much longer rostrum, and broad densely punctate interstices.)

10. R. interpunctatus, *Steph.* (Alliariæ, *Sch.*) Blue or greenish, pubescent, densely punctured; elytra deeply punctate-striate; interstices with a row of punctures; at the base is a short sutural stria. Long. 1¼—1¾ lin. Rare.

11. R. germanicus, *Herbst.* Bluish green, closely punctate, pubescent; elytra punctate-striate; interstices nearly impunctate, with a sutural stria. Long. 1—1½ lin. Very abundant.

12. R. pauxillus, *Germ.* Very like the preceding, but with the thorax obsolete-sulcate, and the ninth and tenth striæ of the elytra united about the middle. Long. 1—1¼ lin. Rare.

b. Size large; rostrum short and broad, very pubescent.

13. R. pubescens, *Herbst.* Blue, very pubescent, punctulate; elytra punctate-striate; interstices punctured. Long. 3½—4½ lin. Local.

14. R. ophthalmicus, *Steph.* (comatus, *Sch.*, *Desb.*) Like the preceding, but about half the size, and the ninth and tenth striæ of the elytra are united in the middle.

(This is certainly the ophthalmicus of Stephens's collection, and M. Desbrocher de Loges must have misunderstood me when he says that I referred it to R. sericeus; the description is still much more applicable to R. sericeus. That species, not yet found here, differs at once by its brighter colour, deeply foveolate head, and the coarse punctuation of the interstices.)

c. Size moderate; rostrum short and broad; head quadrate, constricted behind, nearly glabrous.

15. R. megacephalus, *Germ.* Black; elytra and thorax bluish, the latter irregularly and unevenly punctate, the former rather deeply but not closely punctate-striate. Long. 1½—2¼ lin. Local, and very shy, dropping at the least noise; on birches.

(R. tristis, *Fab.*, resembles the preceding in form, but is larger, and the first joint of the posterior tarsi is very short.)

16. R. Betulæ, *Linn.* Black, finely pubescent; elytra deeply punctate, interstices obsoletely so; male with the posterior femora incrassate. Long. 2—3½ lin. Common.

d. Size small; rostrum short; body cylindric, glabrous.

17. R. planirostris, *Fab.* (uncinatus, *Thom.*) Bluish green, not very shining; thorax thickly punctate; elytra regularly striate. Long. 1—2 lin. Not rare.

18. R. nanus, *Payk.* Confounded with the preceding, but considerably smaller, and with the head obsoletely, the thorax and elytra less regularly punctured; rostrum much shorter and angular at the base. Rarer than the foregoing; on birches.

G. R. Crotch.

Proceedings of the Entomological Society.

Nov. 1, 1869.—H. W. Bates, Esq., President, in the chair.

New British Coleoptera.—Mr. Janson, on behalf of Dr. Power, exhibited the following species of Coleoptera, all new to the British list:—(1) Triarthron Maerkelii of Schmidt, taken near Esher on the 23rd of July, 1869 (also taken by Mr. Oliver Janson, at Shirley, on the 7th of August); (2) Silvanus similis of Erichson, at Esher, on the 4th of August, by sweeping; (3) Niptus Gonospermi of Duval, twelve or fourteen specimens taken by Mr. J. B. Syme on an old wall in the Orkneys; (4) Bruchus Lentis of Boheman, at Birch Wood in May, and at Gravesend in June; (5) B. nigripes of Gyllenhal (which in Kraatz's new Catalogue is said to be B. Viciæ of Olivier), at the Devil's Dyke, Brighton, in May; (6) B. nubilus of Boheman, near Surbiton and at Gravesend, in June (this in the Stettin Catalogue is said to be B. luteicornis, but in Kraatz's new Catalogue it is made a distinct species; it differs much in the form of the thorax, markings, size, &c., and is more like B. seminarius); (7) B. canus of Germar, at Gravesend, in June (this in the Stettin Catalogue is made identical with B. Cisti of Fabricius, but it differs from ordinary specimens of that species in the shape of the thorax, length of antennæ, more elongate form, and peculiar gray colour; it is more like B. Loti: a specimen in the European collection of the British Museum, named by Germar and deposited by Walton, agrees exactly with the Gravesend specimens). All these four species of Bruchus were found in essentially wild places, far removed from granaries or depositories of leguminous seeds, and were all taken fortuitously by sweeping. And lastly, Phratora cavifrons of Thomson, taken at Esher in June, also at Cowley and Darenth, on poplars: it was introduced into the British list by Dr. Sharp, in the 'Entomologist's Monthly Magazine,' v. 100.

Meloe rugosus.—Mr. F. Smith exhibited Meloe rugosus of Marsham (the autumnalis of Leach, and punctatus of Stephens), a species not captured for the last thirty years, but formerly taken, according to Stephens, near Margate. About three weeks previously Mr. Smith, being near Prittlewell, Essex, went to the nest of a species of Anthophora, in which M. proscarabæus and other species are usually found, and by accident came upon a couple of dozen specimens of M. rugosus among grass in the neighbourhood of the nest, crawling about at the roots: he hoped to have kept them alive, but on the second day of their captivity an indiscriminate fight was commenced, in which both sexes joined; only four escaped mutilation, all the rest losing legs and antennæ, and being reduced to fragments: the abdomen of each of the females was afterwards opened, and it appeared that, with one exception, all had deposited their eggs, which rendered their pugnacity still more remarkable. A subsequent visit to the same locality yielded five more specimens of the beetle. It was remarkable that this made the fourth species of Meloe found in the nest of the same kind of bee.

Galls of the Maple.—Mr. Albert Müller exhibited a large number of galls on various plants, and called particular attention to two kinds of excrescence on the leaf-stalk of the maple (*Acer campestre*), described in the following note:—"1. A Dipterous gall formed by a slender, club-like, reddish swelling of the petiole, sometimes in its middle, sometimes at its junction with the leaf: it had a single cell occupying the whole length of the gall, and was tenanted by the white larva of a Dipteron as yet unknown to me, but which I am certain is *not* a Cecidomyia. In September, 1868, and again in the same month this year, I met with this gall on the identical maple-bush in a hedge-row near Shirley, but until now all my attempts at rearing the fly have utterly failed. 2. Also on the petiole of the maple-leaf, a series of spur-like excrescences, standing in a row, each about half a line high. These I am inclined to attribute to the same Acarus Aceris of Kaltenbach which causes the well-known pear-shaped red galls on the leaves of this tree. But whether this be so or not, it is at any rate worth while to point out that insect agency can produce, on thornless plants, excrescences closely resembling, or perhaps identical with, the natural thorns so commonly met with in other groups of the vegetable kingdom." [Mr. Müller's suggestion that a gall on one plant *can* be identical with the natural thorn of another plant, leads to the inference that he suspects all thorns *may* be galls: surely this will not be contended?—*E. Newman.*]

Nov. 15, 1869.—H. W. Bates, Esq., President, in the chair.

English Locusts.—Mr. F. Smith, on behalf of Mr. Edwin Brown, exhibited a locust, several specimens of which had been quite recently captured at Burton-on-Trent: it appeared to be identical with a species of which the British Museum possesses five examples from North Bengal. The specimen exhibited was found in the yard of a brewery; and Mr. M'Lachlan suggested that it had probably been introduced in an empty returned ale-cask. [I believe the insect in question will prove to be Acridium peregrinum. Mr. Walker, who gives me this name, is now engaged in cataloguing the Locustidæ in the British Museum, and will kindly furnish further particulars hereafter.—*E. Newman.*]

Parasitism of Rhipiphorus.—With reference to a recent article in the 'Annals and Magazine of Natural History,' in which Mr. Andrew Murray contends that Rhipiphorus is not a parasite, but only an inquiline in the nests of wasps, Mr. F. Smith desired to recall attention to the observations of the late Mr. S. Stone, recorded in the 'Proceedings of the Entomological Society' for 1864, pp. 62—66. On p. 64, Mr. Stone stated that on opening the closed cells of a nest of the common wasp, he had found a larva of Rhipiphorus firmly attached to the full-grown larva of the wasp, the mouth of the former buried in the body of the latter just below the head; and that in forty-eight hours it consumed every particle of the wasp-larva with the exception of the skin and mandibles. In another nest, which was destroyed by means of gas-tar, Mr. Stone also discovered a small larva of Rhipiphorus firmly attached to its victim, so firmly that when immersed in spirits they remained attached just as they were before death. This identical pair, preserved in spirits, and still *in situ*, was exhibited by Mr. F. Smith, together with numerous other larvæ and pupæ of Rhipiphorus, which were placed in his hands by Mr. Stone. One of Mr. Murray's objections to the carnivorous propensity of Rhipiphorus was the fact that he had found the pupa of Rhipiphorus and the pupa of the wasp in the same cell: it appeared, however, that both were of stunted growth, and it was a matter of common experience that larvæ occasionally spin up before they are full fed, even when food is obtainable, which might have been the case with this Rhipiphorus larva: the attacks of parasites are not always fatal, but many Hymenoptera appear as well as their parasites, *e.g.* Stylops and the bee. Having regard to the known carefulness and accuracy of observation of Mr. Stone, Mr. F. Smith, notwithstanding certain difficulties raised by Mr. Murray, which he was not at present prepared to explain, did not hesitate to re-affirm his belief that Rhipiphorus is a larvivorous parasite, and not a mere guest which enters the nest of the wasp and shares the food of the legitimate occupants.

Scent of Cynips Lignicola.—Mr. Albert Müller made some observations on the scent, when handled, of Cynips Lignicola and another species which forms a gall on the under side of oak-leaves: this scent was probably protective, and gave the insect an immunity from the attacks of birds, &c.; and the rapid spread of Cynips Lignicola over the country might be due to its rejection on account of its peculiar odour. Mr. J. Jenner Weir added that the musk-beetle was free from attack by birds, and this was doubtless due to its scent.

Deiopeia pulchella at Folkestone. — Mr. Briggs exhibited a specimen of Deiopeia pulchella, captured near Folkestone on the 1st of October: its habit was to fly only a few yards at a time, and its appearance on the wing was described as resembling one of the Geometers.

Swarms of Coccinellæ and Syrphi.—Mr. Dunning referred to the swarms of insects of various kinds which had been reported during the autumn: he had himself encountered hosts of Coccinellæ (principally C. 7-punctata, but intermixed with a considerable number of C. bipunctata) both in Essex and in Yorkshire; and at Walton-on-the-Naze, on the 24th of August, he fell in with a countless swarm of Syrphi, which appeared to have all hatched simultaneously, and to have at once commenced buzzing about in the hot sunshine in a foolish kind of way, without caring to take food, for most of them seemed to be mere shells without any substance inside. Noticing that Mr. Horne had recorded (Entom. iv. 356) the occurrence of a swarm at Margate on the same day, which was said to have included specimens of Syrphus balteatus, S. decorus, S. tæniatus, S. topiarius, and Eristalis tenax ?, Mr. Dunning placed in the hands of Mr. Verrall, for examination, a few remnants of the Walton swarm, and had been favoured with the following note: — "Having looked closely through the Diptera you sent me, I find that out of fifty-six or fifty-seven specimens which I can recognize from the fragments, there are twenty-seven Syrphus Ribesii, sixteen S. Corollæ, eight S. Pyrastri, two S. luniger, one S. balteatus, one or two S. vitripennis ?, and one S. Pyrastri *var.* unicolor. This last variety is generally rare, but has this year appeared in tolerable abundance. The specimens of S. vitripennis are in such condition that I cannot speak for certain about them: they may be small examples of S.

Ribesii." Mr. Verrall added that S. balteatus was rare in swarms; S. decorus he believed to be a discoloured variety of S. auricollis; S. topiarius, if British, was extremely rare, and did not occur in the Collections of the British Museum or the Entomological Club; and if Eristalis tenax occurred in a swarm of Syrphidæ, it could only have got there accidentally, as it might appear anywhere [else from its universal distribution. He had once come upon the tail end of a swarm of Syrphidæ, and the stragglers seemed to be nearly all S. auricollis and its variety maculicornis.

With reference to the swarms of Coccinellæ, the President and Mr. M'Lachlan remarked that in this case there was no necessity to have recourse to the hypothesis of immigration, as they had both noticed, previously to the appearance of the beetles, an unusual quantity of the larvæ of Coccinellæ in the southern counties of England: the simultaneous hatching of a large number in one locality caused a scarcity of food there, and compelled many of them to move elsewhere; arriving at the sea-coast the majority were stopped, whilst some, attempting to go further, fell into the sea and were washed back with the tide. The littoral phenomena of the swarms were thus sufficiently accounted for. Mr. M'Lachlan added that the larvæ of Coccinella would eat the pupæ of their own species; and Mr. Janson mentioned that, during the present season, he had had an apple-tree completely covered with black Aphides, the whole of which were cleared off in three or four days by Coccinella 7-punctata.

Fireflies, so called, at Caterham. — With reference to various letters which appeared during the autumn in the daily papers, Mr. J. Jenner Weir said that the "fireflies" reported at Caterham were the males of the common glow-worm; and Mr. F. Smith mentioned that he had a number of so-called "glow-worms" sent to him from Margate, which proved to be larvæ of Telephorus.

Entomological Notes, Captures, &c.

Argynnis Niobe in the New Forest. — Since my communication to you on the subject of Argynnis Niobe (Entom. iv. 351), I have been able to submit my New Forest specimen, first to Mr. Bond, and next to Mr. Doubleday, for examination. The former, after a short examination, inclined to think it a variety of Adippe; but the latter, who kindly sent me specimens of the true Niobe from abroad, and to whom I subsequently sent my insect, after a careful examination has given his opinion thus: — "I have examined your Argynnis very carefully, and think it is a variety of Niobe, female;" and again, "I do not think a faded specimen of Adippe would look like your specimen." I have again written to Mr. Gerrard, who took the insect at Lyndhurst last year (and of whom I purchased it, unset, as merely a variety of Adippe), and he writes me: — "The butterfly you bought of me I caught here, but thought it only a *var.*, or I should not have sold it to you for anything like the money I did: I have never taken in exchange, or otherwise, any foreign insects" (this was in reply to a question I asked): "I caught it with others, but thought so little of it that I did not even set it." You having published my former letter to you on the subject, I thought the present one might be interesting to your readers by way of supplement. One thing will, I hope, result from it, and that is a more thorough exploration of the New Forest next year, to be attended, I hope, with more captures of the insect. — (*Rev.*) *W. Hambrough; Worthing, December* 5, 1869.

Papilio Machaon at Ipswich.—On the 25th of August last Mr. Garrett, of this town, took a fine specimen of P. Machaon in a clover-field about a mile from here. It was quite perfect, with the exception of a small piece out of one wing. Could you make any suggestion as to how it could have got there? I believe this is not the first instance of Machaon being taken in such a situation; and if insects travel across the Channel, I do not see why this should not have come from the fens. — *Edward F. Bishopp:* 137, *Norwich Road, Ipswich.*

Colias Edusa at Dulwich. — While waiting at Dulwich Station this afternoon, I saw a large and apparently fine specimen of C. Edusa flying slowly over the platform. From its weak flight it would have been an easy matter to capture it with my net; not caring, however, to amuse the non-entomological group of passengers by rushing across the line, as well as risking "forty shillings and costs," I did not attempt the feat. I have not heard of this insect being seen so near London this autumn.—*H. Ramsay Cox; West Dulwich, October* 18, 1869.

Colias Edusa in Staffordshire.—Colias Edusa has been observed, for the first time that I know of, in North Staffordshire, during the past season. It has been taken twice—one, a female, quite fresh, at Leycett, in this parish, by a gentleman who caught it in his handkerchief; the other, a male, at Mow Cop, ten or twelve miles from here, by Mr. A. Smith; and it has been seen twice, once at Whitmore by Mr. Kirkby, and once by myself in a farmer's garden at Madeley Heath, on Sept. 3.—(*Rev.*) *T. W. Daltry; Madeley Vicarage, Staffordshire.*

Chærocampa Celerio near Usk.—As I observe, in your interesting work on 'British Moths,' you write of Chœrocampa Celerio as "scarcely a British insect," I would mention having taken a specimen at this place on the 16th of October, 1865: it was in very perfect condition.—*Mary Carbonell; Usk, Monmouthshire, October* 10, 1869.

Acronycta Alni at Torquay.—On the 13th of August, while strolling through the lanes near Torquay, my son found a larva of A. Alni. It appeared to have been shaken off an elm which had just been felled. In confinement, however, it ate apple-leaves in preference to those of elm or oak. It changed to a pupa on the 21st of August.—*Geo. T. Shearwood; Cedar Lodge, Stockwell, October* 23, 1869.

Cirrhædia xerampelina: its birth note.—Will the following memorandum from my note-book throw any new or further light upon the life-history of C. xerampelina? In the month of August last I obtained a considerable number of the eggs of C. xerampelina, which, when newly deposited, were of a dirty white colour, and were laid in rows in the cracks of a piece of old wood which happened to be in the box with the insects: in the course of a week or ten days the eggs turned to a dark bluish brown, and I quite expected that the larvæ were about emerging, but September and October passed away and no further change was apparent. One or two of the eggs, which I opened with my pen-knife, showed the larvæ full formed in the shells, but seemingly without vitality: the eggs had hitherto been kept indoors, but I now placed them outside a window with a north aspect, in a very exposed and cold situation, and thought no more about them until by chance I noticed them on the 10th of December, which was a mild foggy day following four or five days of great cold and frost, and to my surprise found the glass tumbler, in which the eggs were placed, alive with larvæ, at least two hundred of them. I at once got some buds of the ash, which were very little developed and quite hard, and placed them in the glass; some of the buds I cut open. On examining them this afternoon I believe there are not more than four of five of the larvæ alive, and these have eaten into the perfect buds, leaving a small round hole where they have entered: the remainder are all dead at the bottom of the tumbler. I imagine that at liberty the female moth deposits her eggs within the fold of the sheath of the incipient bud of the ash, so that the larva on emerging at once finds itself in close contact with its food, without having to perforate the hard sheath, and that the eggs hatch about the middle of December, provided the weather be mild, and not much later, as the larvæ are found half grown towards the middle of April.—*Bernard Hartley; Park View, Pontefract, Dec.* 14, 1869.

Note on the "Gregarious Spiders of Paraguay."—"Facts are stubborn things," and if what Mr. Masterman records (Entom. iv. 359 *et seq.*) in respect to spiders swallowing the substance of their prey, as well as pellets of silk, be fact, the conclusions of arachnologists would certainly seem to have been hitherto erroneous. One hardly likes to question the accuracy of observations stated by the observer to have been carefully verified, still I find myself rather inclined to believe that Mr. Masterman was deceived, than that spiders could perform what seems so impracticable for them to do upon anatomical grounds. As regards "four-eyed spiders," a remarkable genus possessing only that number of eyes has lately been described by myself in the 'Proceedings of the Linnean Society;' but from Mr. Masterman's general description of his spiders, I conclude them to have been of the genus Nephila: this genus, however, possesses *eight* eyes; four of these are conspicuous and only placed on the centre of the fore part of the caput, somewhat in the form of a square, while the other four are in two lateral pairs; each consists of two smaller eyes near together, but considerably removed from the central four, which might therefore easily be taken, by anyone not accustomed to examine spiders cosely, to be all that were possessed by the spider.—(*Rev.*) *O. Pickard-Cambridge; Bloxworth, Dorset, December* 8.

Hybernal specimen of Phlogophora meticulosa.—Yesterday I picked up a specimen of Phlogophora meticulosa: it was apparently only just out of pupa, as the wings were quite limp. They are not unfrequently met with in November, but I do not remember having a fresh specimen so late as the 12th of December.—*G. T. Porritt; Clare Hill, Huddersfield, December* 13, 1869.

Food-plant of Abia sericea.—The larvæ of Abia sericea were feeding on the devil's-bit scabious (*Scabiosa succisa*): they had a very peculiar way of rolling in a ring, and throwing out a kind of dew all over their bodies, just like that observable on an ice-plant, when I touched them with my hands; but I did not notice the dew on them when I touched them with the lid of a pill-box that I was collecting them in.—*G. Lock; Turkish Baths, Newport, Monmouthshire, Nov.* 16.

Dasycampa rubiginea in Monmouthshire.—On the 16th of November I took one specimen of Dasycampa rubiginea on ivy blossoms: it was in splendid condition. I cannot hear of anyone ever taking any in this neighbourhood before.—*Id.*

How the Scorpion feeds.—A friend having kindly brought me a scorpion from the South of France, I have much pleasure in recording the manner of his feeding. His diet has been entirely confined to juvenile cockroaches: he has been kept in a bottle very loosely corked, and provided with a wet rag on which to repose at leisure or disport himself, exactly as he might prefer. When a young cockroach was dropped in, he became excited, but was far too dignified to pursue, whatever might be the state of his appetite. No sooner, however, did the cockroach recklessly venture within reach than the scorpion seized it with both his claws, and, lifting the captive high in air, seemed totally to disregard its violent struggles for liberty: slowly and judiciously he curved his jointed tail over his back, and then with the finger-like sting at the extremity inflicted the death-wound between two of the segments. Death followed almost immediately, and then the scorpion appeared only to suck the blood of his victim: a very careful examination of the *débris*, including femora, tibiæ and tarsi, did not disclose any symptoms of having been gnawed, all these parts being left entire but detached. —*Edward Newman.*

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Notes on the Diptera in the Entomological Club Collection.
By G. H. Verrall, Esq.

By the kindness of Mr. Newman, who has the management of the Entomological Club collection, I have been enabled to examine some of the numerous species of Diptera contained therein, and thinking a few remarks on the Syrphidæ may be of some little interest, I beg to offer them. The total number of acknowledged British species in this family is not quite 170, and there are more than 140 in this collection, amongst which are representatives of the following genera.

Bacha. There are only half-a-dozen specimens of this genus, four belonging to elongata and two to obscuripennis.

Sphegina. There is a fine series of S. clunipes, a rather rare species, and difficult to obtain.

Arcia. Walker refers to this collection for his A. hastata, but I believe the specimen is only a variety of floralis, of which dispar seems another variety: there are three specimens of this little species and half a row of its common ally podagrica.

Doros. There are four specimens of the rare D. conopseus.

Xanthogramma. Both species are very well represented, there being about a dozen ornata and eighteen citrofasciata, both handsome species, seldom found in abundance.

Sphærophoria. The species in this genus are in a very confused state, never having been anywhere properly described: there seem to be specimens of scripta, dispar, picta, Menthrasti, and possibly nitidicollis.

Syrphus. In this large genus there are representatives of nineteen species, comprising an entire row of Pyrastri, with four of the variety unicolor, and some interesting intermediate specimens; seven laternarius; eight glaucius; one tricinctus; one nitidicollis; a dozen latifasciatus; one arcuatus, which is the only true specimen I have seen; it is unfortunately injured; three lasiophthalmus and one Umbellatarum, both difficult species to find; about eight cinctellus; one specimen called decorus, which is, however, only a variety of auricollis.

Melanostoma. All four British species are here, there being the two types, both females, of Walker's concolor, which is only ambigua of Fallen; two hyalinata, which I believe is only rare because caught late in the year; and several mellina and scalaris. There are two female specimens belonging about here which puzzle me very much; there is a somewhat similar female in the British Museum, and I possess one myself: they are peculiar from their long sharply pointed abdomen, which generally has a couple of red spots: I am not at all sure of their genus.

Platychirus. All the British species are here except immarginatus, but the only specimens worth notice are a pair of probably fulviventris of Macquart, a species perhaps overlooked in England.

Pyroplæna. There are plenty of both species.

Chilosia. The collection is very rich in species, but not in specimens in this genus; amongst others it contains one male intonsa, four pigra (one male, three females); the type of Walker's nigrina, which is only the male of variabilis; one female impressa; about four pairs of albitarsis, one male mutabilis (?); three males and two females of flavicornis; grossa, the male of which I expect is Walker's chrysocoma, as there are none of that species in the collection; five chloris; one female decidua; one female præcox; one female Soror, from which I suppose Walker described his scutellata, as he says "antennæ bright ferruginous;" a pair of sparsa; two female antiqua; a pair of maculata, a most remarkable species; and two specimens which I cannot recognise.

Brachyopa. There are only two bicolor.

Leucozona. There is a full row of Lucorum, as well as of Chrysochlamys cuprea.

Rhingia. Both species of Rhingia seem to be here, and tolerably distinct, there being seven of the pale rostrata and a lot of the dark campestris.

Volucella. All the four species are well represented, and there were a couple of V. zonaria, reported to have been captured in the New Forest, but they have now been removed from the British collection, as more must be known of their history before so striking a species can be acknowledged.

Sericomyia. Plenty of both species, and also of Arctophila mussitans.

Eristalis. In this genus Mr. Newman has lately much improved the collection, there being now fine series of most of the species, showing strong varieties under pertinax; a number of Pratorum?; one Cryptarum; four æneus, but none called stygius; and two male Rupium.

Helophilus. There is the finest collection of this genus that I have seen, there being the two allied species floreus and nigrotarsatus, looking remarkably distinct; a row of pendulus; three hybridus; eight trivittatus; four versicolor; nine lineatus; seven lunulatus; three transfugus and several vittatus, all of which, except the first three, are rare species.

Merodon. There is one fine male specimen belonging to this genus which I cannot identify.

Tropidia. Nearly a row of milesiformis.

Spilomyia. Six specimens of the handsome exotic-looking speciosa.

Xylota. All the species are here, including nearly a dozen lenta, two specimens called bifasciata, which certainly seem to differ from my Nemorum, and one specimen, perhaps a variety of Nemorum.

Syritta. Of course abundantly.

Brachypalpus. Five specimens of bimaculatus.

Criorhina. There are all the species, including three specimens each of the handsome and rare Ranunculi and berberina; and a dozen each of the others.

Myolepta. There is one specimen of the rare luteola.

Eumerus. This genus is very poorly represented, there being altogether only four lunulatus.

Chrysogaster. Most of the species are here, though the collection is not good in this genus: there are a pair of unset specimens called splendida; ten metallina, the males of which are separated as discicornis; more than a dozen specimens labelled viduata, which probably include Macquarti; half-a-dozen splendens; four or five chalybeata; about half-a-dozen Cœmeteriorum, and another half-a-dozen called fumipennis, which *may* be a distinct species, but the specimens look to me like immature faded Cœmeteriorum, only the head seems broader than in that species.

Pipiza. In this genus there are twelve female noctiluca, of which I expect vana is the male; vana is labelled here partly as bimaculata and partly as lugubris; there are two males and one female true lugubris; two females called notata, one of which has slightly clouded wings, and the other has the abdominal spots small; two females called guttata, one of which belongs elsewhere; one *very* immature specimen, from which Walker described vitrea; quadriguttata and quadrimaculata are probably the same and very likely only varieties of noctiluca, male.

Cnemodon. The three males and two females labelled vitripennis probably belong to this genus, and are most likely acuminata.

Pipizella. There are several virens; three female biguttata, called flavitarsis, to which very likely the two males called melancholica belong.

Paragus. Nine specimens, which I have not examined, are in the collection.

Chrysotoxum. There is nearly all the genus here, there being six species, including half-a-dozen vernale, not distinguished from festivum in England till separated by Mr. Newman; four fine specimens of elegans and one of octomaculatum.

Callicera. There is one specimen of ænea, with I believe dark pubescence on the disk of the thorax, instead of yellow, like the continental specimens.

Microdon. Both species are here, about half-a-dozen of each.

Ceria. There is an imperfect specimen of conopsoides, the head having been much injured, destroying the remarkable antennæ.

If any gentleman will entrust their collections of Syrphidæ to me, I shall be most happy to arrange and name them. If they will put all their specimens in a store-box and send by rail, I think it would be best, as types picked out would very probably miss allied species. It would be a benefit to both of us, as it would improve the arrangement and nomenclature of their collections, and increase my knowledge of our British species.

G. H. Verrall.

The Mulberries, Denmark Hill,
London, S.E.

Abstract of the Proceedings of the Entomological Society, December 6, 1869, *and January* 3, 1870.

Larvæ of Heliothis armiger. — Mr. J. Jenner Weir exhibited two specimens of Heliothis armiger, bred from larvæ which fed in tomatoes. An importation of tomatoes from Spain or Portugal had been greatly damaged by a number of green larvæ, with black lines and spots, which fed in the fruit, where there was apparently juice enough to drown them, and which ultimately produced the moths exhibited.

Coleopterous Monstrosity.—Mr. Albert Müller exhibited a photograph of a Coleopterous monstrosity, a specimen of Pterostichus Prevostii with eight legs: on either side of the left hind leg (*i. e.* before and behind the normal hind leg) was a supernumerary limb of somewhat stunted growth, but structurally perfect: there were apparently three distinct coxæ fitting into three separate sockets in a single expanded trochanter. The beetle was found in Switzerland, and Mr. Müller had seen it alive: the extra legs were simply carried, and not used to assist in locomotion.

The English Locusts. — With reference to the locust exhibited at the previous Meeting, the President had received the following from Mr. Edwin Brown: — "I am informed that when my specimen of a new locust was exhibited at the last Meeting of the Society, it was suggested that the occurrence might have been brought about by the introduction of the insect into the brewery in an empty returned cask. I think such a suggestion is untenable, inasmuch as two specimens of the same species were captured in different parts of the town of Burton-on-Trent, and one caught in Birmingham certainly belongs to the same species. There were several other instances recorded in the papers about the same time of locusts having been captured in Worcestershire, in

Nottinghamshire, and at Waterford. It has not yet been proved that these examples were all of the new species, but it is highly probable that this was so, as the peculiar positions in which the locusts have been captured this year all indicate, if I may so term it, an unsophisticated disposition of the animal, widely different from that of Locusta migratoria, which has nearly always been found in fields or gardens, whilst the species of this year has been captured in two brewery yards, in the room of a house, upon a man's coat, and (it is said) upon a lady's bonnet, but looking at the difficulty an animal so large would find in getting standing room upon a modern bonnet, there may possibly be some mistake as to the last-mentioned locality. Mr. F. Walker has identified the species as Acridium peregrinum of Olivier, which is dispersed over a large part of Asia and Northern Africa, but has not hitherto been found in Europe."

Partial Gynandromorphism. — Prof. Westwood, as an instance of partial gynandromorphism, in which the union of the opposite sexual characters was confined to a single limb, exhibited drawings of a specimen of Anthocharis Cardamines, the wings of which, for the most part male, partook to some extent of the colour and character of the female, as if pieces of the wing of the male had been cut out and replaced by pieces of the wing of the female.

Haggerstone Entomological Society.

December 3, 1869.—Mr. E. Barlow, President, in the chair.

The twenty-second Half-yearly Meeting of this Society took place on the above date.

After the usual business of the Society was concluded, the President called upon the Secretary to read his half-yearly Report: he accordingly did so, observing, during the course of his address, that he was happy to inform the members that the Society was in a flourishing condition, having a balance in its favour; that during the past six months fourteen fresh members had been elected; that the cabinet had been enriched by kind donations from the following gentlemen, namely, Messrs. Newman, Cooper, W. Harper, Jonas, King, Gainsbury and Lorimer. Some beautiful varieties of A. Caja, A. Cardamines, V. Atalanta, L. Alexis, H. Leucophearia, B. pilosaria, A. betularia, C. ferrugata and S. Tiliæ, had been exhibited at the weekly Meetings. As regarded the Society's library, that had not been forgotten, several additions having been made thereto; and a brother member, Mr. E. Newman, had presented the Society with a copy of his 'British Moths,' and had given each member a copy of his 'Insect-Hunter's Year-Book' for 1868. Amongst the many rare specimens of British Lepidoptera exhibited by the various members during the past half-year, the following deserve especial mention: — Colias Hyale, Erebia Cassiope, Lycæna Artaxerxes, Acherontia Atropos, Sphinx Convolvuli, Sesia chrysidiformis and ichneumoniformis, Lithosia aureola and helveola, Chelonia Plantaginis, Bombyx castrensis, Selenia illustraria, Psodos trepidaria, Fidonia carbonaria, Eupithecia pusillata, Lobophora polycommata, Cidaria picata, Platypteryx hamula, Stauropus Fagi, Ptilophora plumigera, Notodonta dictæoides and dodonæa, Cymatophora ridens, Acronycta leporina, Cirrœdia xerampelina, Dianthœcia Barrettii, Dasypolia Templi, Cucullia Chamomillæ, Heliothis dipsaceus, Anarta melanopa and cordigera, Plusia interrogationis, Scoparia paralis (alpina, *Dale*), and Hypercallia christiernella. In conclusion, he congratulated the members on the great success of the Society's Exhibition which took place on the evenings of the 18th and 19th of November last, several leading entomologists having honoured the Society by their attendance, the Society's meeting-room being crowded each evening with entomological friends and visitors, many of the latter expressing the great pleasure they had derived from an inspection of the many beautiful objects that had been submitted to their notice.

Entomological Notes, Captures, &c.

Argynnis Niobe. — A short time since a gentleman called at the British Museum with a specimen of Argynnis Niobe which he said had been taken in the New Forest: is this the specimen mentioned in the 'Entomologist'? if so, it only confirms my opinion respecting the specific identity of A. Adippe and A. Niobe: the two insects only differ in a character which, with my Swiss specimens, I could show to be variable; and surely, if two of our chief British lepidopterists are disagreed as to the parentage of the New-Forest specimen, a question may well be raised as to the distinctness of the two so-called species. If the specimen which I saw is the individual mentioned in the 'Entomologist,' I have no hesitation in supporting Mr. Doubleday, and pronouncing it a true Niobe; but I would not disagree with Mr. Bond in considering it more than a variety of A. Adippe. In a short paper recently published in the 'Entomological Transactions' I made a remark respecting the probable identity of the two species; unfortunately I inadvertently wrote "Aglaia" for "Adippe."—*A. G. Butler; British Museum, January* 1, 1870.

[I believe there is no doubt, among continental entomologists, that Argynnis Niobe and A. Adippe are perfectly distinct as species; and I know from a letter of Mr. Doubleday's, now before me, that he entirely agrees with this opinion. The larvæ of the two species are different: Hübner figures that of Adippe on the dog-violet (Viola canina), and that of Niobe on the wild heartsease (Viola tricolor). The upper surface of Niobe is almost exactly like that of Aglaia, while the under surface resembles that of Adippe. There is a variety of Adippe without silver spots. The question asked by Mr. Butler, whether the specimen mentioned by Mr. Hambrough (Entom. iv. 351 and v. 17) is the same as one shown to him at the British Museum, may, I think, be answered in the affirmative, for Mr. Hambrough distinctly says of his specimen, "On taking it to the British Museum," &c.—*E. Newman.*]

Bombyx Pernyi (*Silk-moth*). — Two years ago I recorded in the 'Entomologist' my experience in rearing Bombyx Yama-mai, and last year that of B. Cynthia. I will now, with the Editor's permission, do the like with B. Pernyi. On the 29th of May, 1869, I received from Dr. Wallace newly-deposited eggs of B. Pernyi: these were, of course, from moths which had passed the winter in the pupa state. Hatching commenced on the 22nd of June, about eight-tenths proving fruitful. By an unfortunate accident I lost a part of the young larvæ, leaving me twenty-four to proceed with. These were fed on oaks growing in pots until they had passed the second moult, afterwards on cut branches. The formation of the cocoons commenced on the 7th of August, and of the twenty-four larvæ twenty-three passed to the pupa state, forming splendid cocoons; the remaining one, which had gone through the four moults, did not attempt to spin: it had been weakly from "youth up." Some of these larvæ far exceeded in size those of Yama-mai, as do the cocoons those of that insect. The moths began to emerge on the 26th of September, and within ten days twelve came forth. I allowed three pairs to copulate, from which I obtained upwards of four hundred eggs; the remaining eleven are still (December) in the pupa state and lively. To-day I opened one of the eggs, and found the larva formed and alive. In North China this insect is double-brooded, and in the case before us the double-brooded tendency is manifested. It will be interesting to note the result of this variation, in individuals from the same stock, as to time of hatching, emerging, &c., next year. I hope to be able to keep the hatches separate, and develope the experiment, possibly obtaining two broods from those now in the egg state. There seems to be a tendency in this insect to adapt itself to our climate, and should this prove to be the case I believe it will be by far the most productive of the new silk-moths, the larvæ are so easily reared, the cocoons much larger and heavier than those of either Yama-mai or Cynthia. I may mention that two of the larvæ fed fully a fortnight after all the others had spun up, and grew to an enormous size; the cocoons are proportionately larger than the others: they are among those now in pupa, and will, I expect, produce two splendid females.—*G. Gascoyne; Newark, December*, 1869.

Chœrocampa Celerio. — It may be interesting to know that a specimen of this rare insect was captured at rest on the curtain of a dwelling-house at Barbourne, near Worcester, on the 28th of September, 1865. — *H. H. O'Farrell; Kensington, London.*

Xylophasia Zollikoferi, Freyer, *a British Insect.* — The beginning of October, 1867, Mr. Harding took a large Noctua at Deal, which was unknown to me, but which I thought might be Xylophasia Zollikoferi, from M. Guenée's remark that some authors had placed this insect in the genus Nonagria; and Mr. Harding's moth certainly resembles a female N. Typhæ in colour and markings. A short time since I sent it to Dr. Staudinger, and he says it is Xylophasia Zollikoferi, *var*. This species is principally found in Hungary and Russia, but is not common anywhere. — *Henry Doubleday; January* 10, 1870.

[A description and figure will appear in the 'Insect-Hunter's Year-book.'—*E. Newman*.]

In the matter of Dianthœcia Barrettii.—[In reference to some very beautiful and perfect specimens of a Dianthœcia kindly submitted to me at Peckham, the owner, Mr. Moore, writes to me as follows.—*E. N.*] On the 10th of June, 1861, I found two Dianthœcia larvæ feeding in capsules of Silene maritima. Unfortunately they went down before the next morning, or I should have figured them, as I did many others that season. I have, however, a distinct recollection of the two larvæ, which were a good deal like those of D. capsincola, having the dorsal and subdorsal lines darker than the ground colour, with oblique marks between them, but the general colour was lighter and rather more ochreous than in capsincola. About the same time I took a somewhat worn imago on the wing, in the dusk, on the top of the cliff; and though I supposed it to be a Dianthœcia, I could not refer it to any of the species described in Stainton's 'Manual.' This I showed to the Rev. J. Hellins the same autumn, but the insect being somewhat worn, and Barrettii not then being discovered, we supposed it to be a variety of D. conspersa. Next spring my larvæ produced imagos (one unfortunately crippled in the hind wings), which were evidently the same species. I exhibited all three at a meeting of the York Entomological Society in the spring of 1862, and also to Mr. Allis, of York; but they were still supposed to be only varieties of D. conspersa. I compared my insects with Mr. Doubleday's description of D. Barrettii in the 'Annual' for 1864, but failed to see that they were the same species, chiefly, I think, because Mr. D. described the colour as fuscous, whilst my specimens, particularly the bred ones, have a strong tinge of yellowish olive, and a distinct flush of bluish purple in some of the darker parts, almost approaching to iridescence. Since then my professional duties have prevented my working much at Entomology, which accounts for my specimens of D. Barrettii not having been brought to light earlier. I fancy Barrettii appears in the larva state earlier than some others of the genus, for mine were full-fed when found; and though I searched hard for more, I did not find any, though I continued to find larvæ of D. capsincola, carpophaga and Cucubali all the summer, and carpophaga even in October. The insects you refer to Acidalia straminata and A. circellata I took last summer (1869) near Tunbridge Wells, where I also took several specimens of Agrotis saucia. "Greening's wave" I took at rest on rocks in N. Wales, Sept. 1868, where I also found larvæ of E. expallidata on flowers of Solidago Virgaurea, and from which I bred imagos (two) in June and August of this year (1869). I also took a specimen (imago) of E. albipunctata at Tunbridge Wells in August. — *Henry Moore; 8, Sheffield Terrace, Kensington, December* 27, 1869.

Lemiodes pulveralis.—In reply to the Editor's remarks, in the November number of the 'Entomologist,' concerning this species, I beg to inform its readers that the first specimen (taken by myself in the Isle of Wight) was seen by my kind friend Mr. Doubleday, who at once recognized it as being something new to our British list, but his time being so much occupied he forgot to forward me its name. The specimens taken at Folkestone (two females and one male) were seen alive by my esteemed friend Dr. Knaggs, who on his return to town forwarded me its name. I think this species may fairly be admitted into our British lists, after being scrutinized by the following distinguished entomologists: — Mr. Henry Doubleday, Dr. H. G. Knaggs, Rev. H. Burney, Mr. Bond, &c. — *E. G. Meek; 4, Old Ford Road, Bow, London, E.*

[Mr. Doubleday has since verified the name of this insect, and has most kindly sent me an authentic continental specimen for examination.—*E. Newman.*]

Arge Galathea drops its eggs and does not affix them. — Facts are always acceptable, and it may be interesting to know that Arge Galathea does not deposit its eggs *on* any particular kind of food-plant, but rests on a blade of grass, and the egg is dropped so as to fall at the roots to take its chance, flies a few feet and again repeats the process. I watched several on the 26th of July last, and with the same result.—*Geo. C. Bignell; 8, Clarence Place, Stonehouse, Plymouth, January* 20, 1870.

Micro-Lepidoptera in the City. — At our office in Fenchurch Street I have taken two specimens of Tinea ferruginella, six of T. pallescentella, and five of Oinophila V-flavella, all in good condition.—*W. Machin.*

Micro-Lepidoptera on Hackney Marshes. — I have to record the occurrence of Gelechia maculiferella, G. tenebrosella, G. atriplicella, D. Oliviella, Coleophora bicolorella, and Cosmopteryx Druriella, on Hackney Marshes, in August last.—*Id.*

Coleophora Therinella. — I met with three specimens on Hackney Marshes in August last. Being desirous of breeding this species, I have lately visited the locality, and searched the decayed thistles and the grass at their roots, and have found a few cases containing larvæ of two distinct sizes. The larger cases contain larvæ apparently full-grown, and will, I expect, produce moths in August next; but I am inclined to believe the smaller ones will feed through next summer, and produce imagos in 1871. That several of the Coleophoræ have this habit I have ascertained to be the fact from my own experience in breeding.—*Id.*

Mecyna polygonalis at Bury.—The Rev. A. H. Wratislaw has just shown me a very perfect specimen of Mecyna polygonalis, which he captured during the past summer on a railway-bank near Bury St. Edmund's. This pretty European species has always been regarded as a rarity in Britain.—*Edward Newman*; *January* 21, 1870.

Time of Appearance of Acherontia Atropos. — I should like to know what you think about the pupæ of the death's-head moth. If you think they will come out next May, perhaps you will let me know in the February 'Entomologist.' *J. Parsons; 41, Curriers' Arms Lane, Ipswich, January* 3, 1870.

[All that I know of this matter is given at p. 281 of No. 11 of the 'Entomologist:' the moths appear in June and October; nevertheless there is but one brood in the year.—*E. Newman.*]

THE ENTOMOLOGIST.

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Concerning the Classification of Butterflies.

By EDWARD NEWMAN.

IT followed as a matter of course that so soon as Entomology became a distinct and independent science, instead of remaining, as it began under the great Linneus, an integral portion of the more extended science of Zoology—it followed, I say, as a matter of course that the gorgeous butterflies should attract a large if not a principal share of attention. Linneus was one of the earliest to extol their beauty and to attempt their classification; and although we have allowed the names and even the characters which he employed in forming his divisions, to drop out of use, and to be preserved rather as "curiosities of literature" than as lessons for our guidance, it is impossible for the modern entomologist to study the divisions themselves without feeling the most profound respect for the genius of him who was the first to detect and associate groups so natural. Almost immediately after the publication of the earliest efforts of this master mind, which we may date 1756—60, two officers in the Austrian army, Denis and Schiffermüller, issued a work now known as the Vienna Catalogue; and in this work, dated 1776, was introduced an entirely new element of classification: adopting as their motto the words "One eye to the imago, and another to the larva," these illustrious Austrians opened a mine of knowledge with which Linneus, who drew his characters from the imago only, was entirely unacquainted.

Mr. Swainson and Dr. Horsfield seem to have been the earliest entomologists who thoroughly appreciated the importance of the Vienna Catalogue; and both of them studied the preparatory stages of a butterfly's life-history before giving to the world their matured views of classification. And here I may observe that it is not a little remarkable that to this hour the Vienna Catalogue is only quoted as an authority for specific names, while its truly philosophical character and deeply instructive teaching is altogether neglected. I must, however, confess, after paying this just tribute to the merits of the Vienna Catalogue, that the principles of classification which it reveals are more especially applicable to that portion of the Lepidoptera which I have called "Sessiliventres" than as a guide for primary division; for, strange as it may seem, there is no character yet discovered, much less promulgated, which will serve absolutely to distinguish the larva of a butterfly from that of a moth.

Neither the authors of the Vienna Catalogue nor those entomologists who have accepted its guidance—I more particularly allude to Horsfield and Swainson, Latreille and Boisduval—appear to have felt this deficiency, for they have quietly contented themselves with applying the differential characters of larva and pupa to minor divisions or subdivisions, and have trusted to those of the imago for distinguishing between moths and butterflies. I make no attempt to supply this great deficiency and desideratum in our science; but I cannot dismiss the subject without expressing a doubt as to the value of this binary division of Lepidoptera,—whether the divisions Diurni and Nocturni, Rhopalocera and Heterocera, or Pedunculata and Sessiliventres do not recommend themselves as terms of convenience only, and whether they have not been accepted with such universal eagerness because offering us a ready means of escape from thought, reflection and laborious investigation. These questions, however, cannot be discussed in a restricted paper like this, and I therefore proceed to cite Dr. Horsfield's views and experience on the classification of butterflies as formed during his residence in the Island of Java.

"I lived at this time at Surakarta—a province in the interior, belonging to the native princes. I was amply provided with every convenience and facility for preserving what I had collected. Several draughtsmen had likewise been trained, under my superintendence, for botanical delineations; and the skill they acquired in those soon fitted them for the annulose department. I was, therefore, enabled to enter upon a history of the metamorphoses of Javanese Lepidoptera, a design which had long engaged my anxious solicitude. Although I did not at this period so fully conceive the paramount necessity of an acquaintance with the metamorphoses of Lepidoptera towards the establishment of a natural arrangement, as I have been led to do in later periods, yet I was so strongly impressed with its essential importance in attempting a complete history of insects, that I commenced with a fixed determination to prosecute the inquiry with unremitted industry and zeal, to collect all the larvæ of lepidopterous insects which I might possibly obtain, and to trace them through the various periods of their existence: with this view I fitted up a large apartment adjoining my residence with breeding-cages and receptacles for chrysalides. At the commencement of the rainy season, the period when, in tropical climates, the foliage of vegetables is renewed, I daily went out in search of caterpillars, accompanied by the most intelligent of my native assistants. The caterpillars thus collected were placed in separate breeding-cages, and several of the assistants were instructed to provide daily, at regular periods, the food the individuals required, and to secure the cleanliness of the cages. As soon as the caterpillars were approaching to perfection, a drawing was made of them: the same individual which had been submitted to the draughtsman was then separately confined, watched with the most diligent care, and as soon as it had passed into the state of the chrysalis, again made the object of the pencil. A determinate number was carefully attached to the drawing and to the cage of the chrysalis. As soon as the perfect insect had appeared and expanded its wings it was secured, set and numbered, in accordance with the larva and chrysalis. During this period every possible solicitude was employed to prevent mistakes."

The enormous amount of information thus acquired enabled Dr. Horsfield to enter on the difficult subject of classification with a facility and from a vantage ground that no previous writer had possessed; but it was the author's misfortune, as I consider it, at the very period when he was arranging his materials, to meet with, study and accept, Mr. MacLeay's work on the quinary system, and every fact he had observed, every combination he had made, became subservient to this most seductive scheme; so that, following

Mr. MacLeay's fanciful division of the *whole* of the Coleoptera into five groups, founded entirely on the characters of the larvæ, Dr. Horsfield applied the same principles to a *portion* of the Lepidoptera, thus at the very threshold of the inquiry seeming to abandon the design of his chosen guide. Notwithstanding this discrepancy the merit of Dr. Horsfield's quinary division of butterflies cannot be disputed, since it is in many respects truly natural. I give it in his own words.

"*First*. A larva of a linear-oblong form, attenuated at both ends, depressed or cylindrico-convex, of a sluggish appearance, with short and scarcely perceptible feet, distinctly marked above with transverse striæ. A pupa nearly smooth, or with comparatively few protuberances, very obtuse at the anterior extremity, attached by the abdomen, braced, vertically suspended with the head upwards or tending forwards in a horizontal direction. Representing the Vermiform Ametabola." [Erycinidæ and Lycænidæ of Doubleday's List.]

"*Secondly*. A larva of a cylindrical form, generally swelled or thickened at the fourth or fifth section of the body, attenuated towards the head and posterior extremity; in the typical genera naked, or covered with short, obtuse, fleshy protuberances; in the extreme genera, at the boundary of the neighbouring groups, covered with a close silky down, or with short scattered hair, most remarkably distinguished by a furcula or forked tentaculum, situated between the head and neck, which may be drawn back or thrust forward at pleasure. Pupa angulated and mostly tuberculated; in the typical genera, and in those at the confines of the first group, attached by the posterior extremity, braced and vertically suspended with the head upwards; in the genera approaching the third stirps, perpendicularly suspended according to the habits of that stirps. Representing the Chipognapiform or Juliform Ametabola." [Papilionidæ, Rhodoceridæ and Pieridæ of Doubleday's List.]

"*Thirdly*. A cylindrical larva, strikingly characterized by its terrific or threatening aspect, being covered with sharp, rigid, erect processes, often of great length, but diversified in the different subdivisions, arranged in regular longitudinal lines along the body of the larva, and beset with numerous diverging spines disposed in a verticillate manner. The attitude of the pupa is the reverse of that of the typical forms in the two former divisions: it is attached by the abdomen, while the head is directed perpendicularly downwards; in form is greatly diversified. Representing the Chilopodiform or Scolopendriform Ametabola." [Vanessidæ of Doubleday's List.]

"*Fourthly*. A lengthened cylindrical striated larva, somewhat smaller at each end, apparently of an agile habit, naked, or covered with a slight down, having a head of moderate size armed with two erect spines, or provided with a movable shield, often of great size, and beset with erect hornlike processes; but the chief characteristic of this division consists in two very strongly marked lengthened filiform or spinous appendages at the extremity of the abdomen. The pupa is attached by the tail and suspended perpendicularly, as in the last division; its head is in general terminated by two points of various form and length. Representing the Thysanuriform Ametabola." [Apatura and Satyridæ of Doubleday's List.]

"*Fifthly*. A cylindrical larva, nearly naked, with a very large head, often globular, and attached to the body by a long neck; characteristically distinguished from the other subdivisions by its bluntness and abrupt termination behind; the pupa being covered with a convoluted leaf. Representing the Anopluriform Ametabola." [Hesperidæ of Doubleday's List.]

No entomologist worthy of the name will for a moment doubt the value of these divisions, or say that they are unnatural, and therefore unsound; but there are those who, smiling at all attempts to restrict Nature to certain numbers in the divisions of the Animal Kingdom, will be unwilling to accept this quinary division of butterflies; and will altogether regret the fanciful comparison of lepidopterous larvæ with the various divisions of apterous annulates. To me it has appeared that Dr. Horsfield, confessedly one of our greatest lepidopterists, has in this arrangement made the real subservient to the ideal; and has thus lost the best opportunity an entomologist has ever possessed of establishing an unexceptionable classification.

Mr. Swainson's views are open to the same objection, although certainly entitled to commendation as evincing great knowledge of his subject; and it is worthy of note that his system, founded principally on the preparatory stages, corresponds almost exactly with that of the illustrious Latreille, founded principally on the imago; but Mr. Swainson's views as to the principles of classification have found no favour in the eyes of more practical systematists.

Lastly, M. Boisduval has given an elaborate classification of butterflies, in which he combines the characters of the preparatory and perfect stages in a masterly manner, exhibiting an amount of knowledge derived from practical observation that has never previously been attained.

From these several sources I deduce the following formula, in the compilation of which I have been compelled to trust, in great measure, to authority rather than observation: these two sources of knowledge I have distinguished by referring to figures and descriptions where the information conveyed is not mine: this distinction will separate the species or groups mentioned into British and Exotic.

LEPIDOPTERA PEDUNCULATA.

1. DETEGENTES, or those which expose their pupæ to the full influence of weather and light, providing them with no cocoon or case as a protection, and in which the pupa thus exposed has a tendency to be angulated, a tendency sometimes very obviously exhibited, at other times scarcely at all pronounced.
    - i. *Suspensi*, in which the pupæ are attached by the tail only, and generally hang head downwards. The imago has but four perfect legs, the mesopedes and metapedes which possess claws on the tarsi: the propedes are aborted and not used in walking, and are without claws to the tarsi.
        - a. Spinigeri, in which the larva is armed with branched spines (ex. Vanessidæ, Argynnidæ) or tubercles (ex. Sybilla). I am not aware by what name this truly natural and very extensive family is known, to which such species as Plautella, *Hübner*, 99, 100; Lucilla, *Hübner*, 101; Populi, *Hübner*, 108; Sibylla and Camilla, *Hübner*, 106, 7, properly belong: they certainly exhibit but little affinity with Vanessa, Pyrameis, Argynnis and Melitæa, and still less with Apatura.

b. Limaciformes, in which the larva is shaped like a slug and has no spines; the body terminates in two pointed processes directed backwards (ex. Apatura Iris and A. Ilia, *Hübner*, 115, 116, and all the Satyridæ of Doubleday's list).

ii. *Succincti*, in which the pupæ are attached by the tail, and are also supported by a belt of silk round the waist.

a. Onisciformes, in which the larvæ are shaped like woodlice, the head being small and retractile, and the legs concealed.

Obs.—The Onisciformes of this method are invariably divided by entomologists into two families—Erycinidæ, with the fore legs aborted in the males but perfect in the females; and Lycænidæ, in which all the legs are perfect in both sexes. The late lamented Edward Doubleday has, however, very clearly shown that this character is by no means absolutely distinctive, the males of several of the true genus Lycæna having very imperfect fore legs. The pretty little English butterfly commonly known as the Duke of Burgundy Fritillary is now generally placed in the family Erycinidæ; but a comparison of the tarsal claws of the male with those of some males of the genus Lycæna make it doubtful whether this separation of Nemeobius (or more properly Hamearis) can be maintained.

b. Cylindracei, in which the larvæ are cylindrical and naked (ex. Papilionidæ, Pieridæ and Rhodoceridæ of Doubleday's List; also the following European species: — Cerisyi, *Hübner*, 890; Polyxena, *Hübner*, 392, 393; Cassandra, *Hübner*, 910—913; Demnosia, *Freyer*, t. 7, fig. 2; Rumina, *Hübner*, 633, 634; and Medesicaste, *Ill. Magaz.*)

Obs.—These species constitute the European genus Thais, all the larvæ of which feed on the species of Aristolochia (birthwort): they are very peculiar insects, and are supposed by some authors to be closely allied to the genus Doritis, which here follows next in succession. It should also be mentioned that Rambur, in the 'Annales de la Societé Entomologique de France' (1836, p. 576), describes the pupa of Pontia Eupheme as enclosed in a tough silken cocoon, pointing out a still closer alliance at this point between the two primary divisions.

2. CELANTES, or those in which the larvæ, prior to changing to pupæ, envelope themselves in a silken follicle or cocoon more or less compact: the pupæ are generally without angles, like those of the genus Chelonia among the Sessiliventres.

i. ——

a. Bombyciformes, in which the head of the larvæ is smaller than the second segment, and decidedly less in circumference than the following segments (ex. Clarius, H. S. 628—31, 257, 8; Tenedius, *Eversmann*, H. S. 632, 3; Actius, *Eversmann*, H. S. 634, 5; Apollonius, *Eversmann*, H. S. 636, 637; Apollinus, *Herbst*, H. S. 253—6; Nomion, *Fischer*, H. S. 409, 410; Apollo, *Linnæus*, H. 396, 397; Delius, *Esper*, H. 567, 568; Delphius, *Eversmann*, H. S. 638, 639; Mnemosyne, *Linnæus*, *Hübner*, 398).

b. Capitati, in which the head of the larva is larger than the second segment, and generally larger than any of the succeeding segments; this is frequently so decidedly the case as to give the larva the appearance of being hammer-headed (ex. Hesperidæ of Doubleday's List).

ii. —— in which those few larvæ that are known have a number of long feeble hairs scattered over every part of the body.

a. Synemonii, in which I must have recourse to a character of the imago: the antennæ are abruptly capitate (ex. Hesperia? Sophia, *White*, Grey's Exped. Aust. App. 474, fig. 7; Theresa, *E. Doubleday*, Lort's Disc. App. pl. 3, fig. 6; Mopsa, *E. Doubleday*, Id. pl. 3, f. 7; Læta, *Walker*, Cat. Brit. Mus. Part i. Lep. Hetero. p. 36; Plana, *Walker*, Id. p. 37).

These little butterflies appear to be very generally neglected by collectors in Australia, probably on account of their insignificant size and unattractive appearance.

b. Cydimonii, in which the antennæ are long, slender, and generally slightly incrassated before the tip (ex. Papilio Leilus, *Cramer*, 85; Brasiliensis, *Cramer*, *Guenée*, pl. 1, fig. 1; Cacica, *Guenée*,

p. 8; Boisduvalii, *Guérin*, *Icon. Regne Animal*, pl. 82; fulgens, *Boisduval*, *Guenée*, p. 9, *Sloane*, *Hist. Jamaica*, pl. 239, fig. 11, 12; Rhiphæus, *Drury*, vol. ii. pl. 23, fig. 1, 2; Orontes, *Linnæus*, *Clerck*, pl. 26; Patroclus, *Linnæus*, *Drury*, vol. i. pl. 7 & 8, fig. 1; Achillaria, *Hübner*, figured as Patroclus by Cramer, 198 A; Lunus, *Linnæus*, *Cramer*, 200 A); Selene, *Guenée*, p. 18; Diana, *Guenée*, pl. i. fig. 4; Empedocles, *Cramer*, pl. 99, A B; Phoebe, *Guenée*, p. 19; Orithea, *Cramer*, 262, C D; Egina, *Blanchard*, *Regne Animal*, pl. 145, fig. 4; Leachii, *Godart*, *Ic. Regne Animal*, pl. 83; Evenus, *Blanchard*, *Regne Animal*, pl. 145, fig. 2.

The butterflies of this beautiful group have been removed by Boisduval, Blanchard and Guenée to the Sessiliventres. Guenée's remarks on this subject (Uran. et. Phal. vol. i. pp. 1, 2, 3 and 4), like everything that accomplished entomologist has written, are deserving the most attentive study, but to me they are unconvincing. M. Lucas, in a paper just published in the 'Annales de la Société Entomologique de France,' has made some observations on Urania Rhiphæus which are of great interest, and which my friend Mr. Doubleday, with his usual kindness, has copied for me as follows:— "It appears that this species, placed by Latreille with the Diurnes, and arranged on the contrary with the Nocturnes by Boisduval and Blanchard, is not very uncommon in the environs of Tananarrivo: it reposes on the leaves of the Mango, and is then not very difficult to capture. According to the authors who have described the metamorphoses of this splendid insect, the caterpillar is spiny, and is furnished with two retractile tentacles on the first segment; it feeds on the leaves of the Mango, and changes to a pupa attached by the posterior extremity." These characters seem to point to an affinity between the Cydimonii and the Detegentes suspensi; but the characters here noticed require confirmation: if correct they seem to disturb all arrangements hitherto proposed.

Summary.

LEPIDOPTERA PEDUNCULATA.

1. DETEGENTES	
i. *Suspensi*	
a. Spinigeri	Io
b. Limaciformes	Iris
ii. *Succincti*	
a. Onisciformes	Betulæ
b. Cylindracei	Machaon
2. CELANTES	
i. ——	
a. Bombyciformes	Apollo
b. Capitati	Sylvanus
ii. ——	
a. Synemonii	Mopsa
b. Cydimonii	Leilus

EDWARD NEWMAN.

Entomological Notes, Captures, &c.

Argynnis Adippe and A. Niobe. — I am rather surprised that Mr. Butler should consider Argynnis Adippe and A. Niobe to be varieties of one species. I believe they are as distinct as any two species of the genus. The larvæ, according to Hübner, are different; and Niobe is a sub-alpine species on the Continent: the upper sides of the perfect insects are very dissimilar in colour, especially in the females; and this difference is constant in all the varieties. The female Adippe is a bright greenish orange, and this colour extends to the base of the wings; the female Niobe is dull fulvous, and the base of the wings is very dark fuscous, almost black; and the basal half of the wing is often suffused with this colour, which is never the case in Adippe; in fact Niobe is almost exactly like Aglaia on the upper side, but the under side is very different. A variety of Adippe without any silvery spots on the under side is not uncommon on the Continent, and Mr. Bond possesses a specimen which was captured in Hampshire: it is the Cleodoxa of Ochsenheimer: it is very probable that this variety has sometimes been confounded with the corresponding variety of Niobe, called Eris by Meigen.—*Henry Doubleday; Epping, February* 15, 1870.

Captures near Wanstead.—I took a good many things at sugar during June and July, but no rarities. Dipterygia Pinastri swarmed, and Thyatira Batis and T. derasa put in an occasional appearance. Catocala nupta was very plentiful in the autumn. Among butterflies, larvæ of Thecla Betulæ swarmed again at Loughton, notwithstanding the war that is waged against them annually by London dealers.—*W. J. Argent; Fern Cottage, Wellesley Road, Wanstead, January* 24, 1870.

Eremobia ochroleuca near Bury St. Edmunds.—Near the railway-cutting in this neighbourhood, where I took Mecyna polygonalis, I have captured about a dozen specimens of Eremobia ochroleuca, all without exception on the flowers of Centaurea scabiosa: I never saw one on those of C. nigra. —(*Rev.*) *A. H. Wratislaw; School Hall, Bury St. Edmunds, January,* 1870.

Emmelesia affinitata in Scotland.—I captured a specimen of this species last season at Partick, near Glasgow; and I observe that it is mentioned in your 'British Moths' as not being known in Scotland. If it is worth notice in your next month's 'Entomologist,' I should like to know of any other known instance of its capture here.—*John M. Campbell;* 9, *Carrick Street, Glasgow, February* 2, 1870.

Philonthus cicatricosus.—I should like to record the capture by me of Philonthus cicatricosus, a species new to our lists, and hitherto only recorded from Sicily and France. Mr. Crotch, with his usual kindness, has determined the species for me. I have had it in my collection under the name of Philonthus fucicola since the spring of 1867. It occurs very sparingly under stones on Southsea beach, is solitary in its habits, and appears to prey on the common sand shrimp. Those correspondents to whom I have sent specimens as "fucicola" will please alter the name to "cicatricosus." The following note by Mr. Crotch will enable them to separate the species from P. fucicola and P. xantholoma:—"Xantholoma: elytra and abdomen very closely punctured, opaque. Fucicola: elytra closely punctured, shining. Cicatricosus: elytra sharply punctured;

abdomen closely punctured, opaque. Xantholoma has long elytra also."—*H. Moncreaff; Southsea, February* 14, 1870.

Breeding the Tineina.—I wish to try and breed some of the Tineina next season, and, knowing that you are always ready to assist with your advice, I take the liberty of writing to inquire of you what course is to be pursued on finding a leaf-mining larva. If the leaf is picked off it will of course die; and if a cutting is taken, though the cutting may live, the leaf will still die. If you would kindly solve my difficulty, and give me any further advice, you would greatly oblige.—*A. W. Druce; 21, Cheyne Walk, Chelsea, February* 8, 1870.

[If you gather the mined leaves you will obtain a good proportion of perfect insects, even though the leaves are allowed to shrivel. Most of the species are so short a time in the larval state that the death of the leaf makes but little difference; but the leaf, when kept from the drying influence of the atmosphere, will preserve its freshness for many days. —*E. Newman.*]

The Grub in Wine-corks.—Will you kindly state the name of the grub feeding on the wine-corks in my cellar? They have lately increased to such an extent that they threaten to make us all teetotallers. The corks which I send you are a sample of the mischief now in progress. If you can suggest a remedy it will be most thankfully received.—*A. R.; Yeovil, February* 7, 1870.

[The grub which feeds on the corks of wine-bottles is the larva of a small moth, the scientific name of which is Oinopota V-flava, in English "the yellow-V wine-drinker." This insect was the subject of much discussion at the Entomological Society some years ago, and it was suggested at the time that it was introduced in the straw now so frequently used for the covers to wine-bottles; this, however, was never clearly established; the only fact ascertained seems to be that the straw covers and the "wine-drinker" were simultaneously introduced into our cellars. It was observed that corks when sealed were never infested by this plague, and it was suggested that corks should be sealed. The application of benzole and corrosive sublimate to that portion of the cork which remained outside the bottle was recommended; but wine merchants strongly objected to these remedies as being worse than the disease.—*Edward Newman.*]

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Critical Notes on certain British Leucanidæ, by Dr. O. STAUDINGER. Translated from the 'Stettiner Zeitung' for 1869, by ALBERT MULLER, Esq.

1. Nonagria neurica of Hübner, N. dissoluta of Treitschke, Arundineta of Schmidt.—In Ochsenheimer's collection there is a true Neurica (Hübner, fig. 381), as such, with a label in his own handwriting. Below it there is a typical Arundineta of Schmidt, with a label whereon is written, in Ochsenheimer's handwriting, "An eadem cum præcedente? sub nomine Noctua dissoluta." In Treitschke's collection there are five specimens, under the label "Neurica," of which the first is Neurica of Hübner, 381; the second, third and fourth are Arundineta of Schmidt, and the fifth is the dark form of Neurica* (Hübner, fig. 650—661), subsequently Hessii of Boisduval, and from this, as well as from what Treitschke says about Neurica (vol. v. 2, p. 319), it is strikingly shown that Treitschke threw together the three forms, although Ochsenheimer had previously rightly conjectured the latter to be another species, Arundineta (so well distinguished by my friend Schmidt, of Wismar, in the Stett. Ent. Zeit. 1858, p. 369, &c.) The name Dissoluta must therefore only be retained for the dark form of Arundineta (for that only it certainly is), for Hübner's 659—661, and for Hessii, *Boisd.*, as Treitschke, when mentioning this name, means only the dark form. But to act with strict propriety the name Dissoluta of Treitschke must be retained as the typical name, for the sake of priority; the name Arundineta of Schmidt must be added to it as a variety, although this

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* Mr. Doubleday suggests that this name should be printed "Arundineti," and that the name "Neurica" has been written by Dr. Staudinger in mistake. In his 'Catalogue' Dissoluta stands as a variety of Arundineti: there is probably a dark form of the true Arundineti, but Mr. Doubleday does not know that any one has found it.

black Dissoluta of Treitschke is now extremely scarce, and has not been found since the death of old Hess. Whether at all, and in what proportion, also the light form of Arundineta occurs near Darmstadt, is unknown to me. Near Wismar Schmidt never found the dark form.

2. Leucania Caricis of Treitschke, L. Loreyi of Duponchel. — I can scarcely understand how the true Leucania Caricis has been so long misunderstood. To begin with, Herrich-Schæffer has figured quite another species, namely, L. Scirpi of Duponchel, sub-fig. 324, 325, as Caricis of Treitschke, and described it at p. 231; but this error he has subsequently corrected. Guenée also does not know what to do with L. Caricis of Treitschke, and refers it (i. p. 80), with a query, to L. putrescens of Hübner, 730—731. In most collections, as well as in my own, a small paler coloured Punctosa of Treitschke has hitherto been standing as the Caricis of that author, because they were sent to us with this name, especially from Montpellier. I have never been able to find a difference between this and Punctosa, which indeed does not exist. In Herr Lederer's collection I found as Caricis the Leucania Zeæ of Duponchel, and indeed there everywhere appeared the greatest confusion concerning the Leucania Caricis of Treitschke. Now, in Treitschke's collection there are four splendid specimens of L. Loreyi of Duponchel as Treitschke's Caricis, and everybody possessing the true Loreyi of Duponchel will find, when reading the Treitschkian description (vol. x. 2, p. 91), that it applies to it extremely well, and that therefore it must now be—

Loreyi, *Dup.* vii. 1, p. 81, pl. 105, 7 (1827).
Caricis, *Tr.*, x. 2, p. 91 (1835).

This species occurs everywhere in the most southern part of Europe: I possess it from Montpellier, Sardinia, Granada, Malaga and the Canaries: Dahl found it in Sicily, and E. v. Frivaldszky has obtained it from Crete as the Caricis of Treitschke.

Aporophyla ingenua, *Fr.*, Scriptura, *Fr.*, orientalis, *H.-S.* = Australis, *Boisd.* — The type of Ingenua (Fr. tab. 508, 1) is in my collection, through the purchase of Von Weissenborn's collection. The originals (types) of Orientalis, *H.-S.*, 502, 503, I saw in Frivaldszky's collection, where there is also Scriptura, *Fr.* tab. 255, 2. There is not the slightest doubt that all of them are only varieties or aberrations of the Australis of Boisduval, which is the Ingenua of Treitschke, and the Orientalis of Herrich-Schæffer, the almost uniformly dark variety, (and) Scriptura, the transition to it. The originals (types) are all from Crete, or at all events from the East. Such specimens occur near Montpellier, where I had formerly the opportunity of selecting from hundreds of Australis. The English specimens of Australis, which have very sharp markings (black and white) are very peculiar, and the dark variety seems never to occur. This form quite merits to be mentioned in our Catalogues as *var.* britannica.

3. Xylina Lambda of Fabricius, Somniculosa of Hering, Rubescens of Ménétries. — Even to this day there stands in Treitschke's collection the type of Noctua Lambda of Fabricius (Ent. Syst. iii. 2, p. 106, No. 317), a species which has been discussed at some length by Treitschke (vol iii. p. 18). This Lambda of Fabricius is doubtless identical with the subsequently described Somniculosa of Hering (Stett. Ent. Zeit. 1851, p. 165), or the still subsequent Rubescens (Mén. Etud. Ent. 1859), as the specimen seemed to me to be a sharper-marked one. The Fabrician indication of the markings of the fore wings, "Lineola baseos duabusque in medio atris," also applies better to the sharper-marked variety Rubescens of Ménétries. I therefore believe that this Lambda came originally from Lapland, whence it is known that Herr Schneider, of Stralsund, from whom Fabricius received the specimen, often obtained collections, and where the species is not scarce. Although I regard this form, as Treitschke had previously done, to be only a variety of Zinckenii, yet as a well-defined local form it must keep its name, and must now stand as

Lambda, *Fab. Ent. Syst.* iii. 2, p. 106; Rubescens, *Mén. Et. Ent.* (Europa Cor.)
Var. Somniculosa, *Stett. Ent. Zeit.* 1851, p. 165 (Germania Sept-Or.)
Var. Zinckenii, *Tr.* v. 3, 16 (Germania Sept-Occ.)

O. STAUDINGER.

A List of the Butterflies collected by J. K. Lord, Esq., *in Egypt, along the African Shore of the Red Sea, and in Arabia; with Descriptions of the Species new to Science, by* F. Walker, Esq., F.L.S., G S., &c.

Klug, in his 'Symbolæ Physicæ,' has contributed much to the illustration of the insects of Arabia, but the Entomology of Egypt has been for the most part neglected. The latter region, once the bed of a sea, was gradually peopled with an insect-fauna, partly resembling that along the shores of the Mediterranean, and of which there are some traces on the sandy sea-coasts of England. This fauna has been modified by the very ancient cultivation of the soil, and by the agency of the Nile in distributing along its banks some of the products of the interior of Africa.

The localities in which insects were collected by Mr. Lord are as follows:—

Egypt. — Cairo, Shoobra, Heliopolis, Red Mountain, Geezech Pyramids.

Africa, near the Red Sea. — Berenice, Souakin, Hor Tamanib, Massowah, Sheykh Berout, Akeek (island), Harkeko, Dahleck (island), Rafla (Annesley Bay), Tajora (Straits of Bab-el-Mendeb), Akeeko (Arab village), Zayla (Indian Ocean).

Arabia.—Wâdy Gennèh, Wâdy Amara, Wâdy Sidri, Wells of Moses, Pharoah's Baths, Wâdy Ferran, Wâdy Nasb, Wâdy-es-Sheykh, Tór, Wâdy Gharandel, Wâdy Hebran, Plain of Ramleh, Gebel, Musa (Mount Sinai), gardens round Mount Sinai, sandy plains (Mount Sinai), Convent Garden (Mount Sinai), Wâdy Atall.

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1. *Papilio Machaon*, Linn. Mount Sinai.
2. *Pieris Rapæ*, Linn. Cairo.
3. *Pieris Eris*, Klug, Symb. Phys. pl. 6, f. 15, 16. Cairo.
4. *Pieris Mesentina*, Cram. Hor Tamanib, Harkeko, Rafla, Tajora.
5. *Pieris Lordaca*, n. Expands 2 in. White. Fore wing: a broad brown stripe on the costa, emitting at a little before half the length of the latter a broad oblique truncated branch to the discoidal cell, thence abruptly attenuated till it joins the broad brown band along the hind margin, this band undulating

along its inner side and decreasing in breadth to the anal angle. Hind wing: a broad brown band along the hind margin, undulating along its inner side, extending to the exterior part of the costa, where it includes two white brown-speckled patches; a very slender brown streak on the anterior disco-cellular nervule. Under side—Fore wing: like the upper side, but the brown band along the hind margin includes seven white spots, of which the six anterior are tinged with yellow and the four anterior are elongated. Hind wing: a yellow tinge, excepting the disks of some of the areolets; a narrow irregular brown band across the middle; veins narrowly bordered with brown; band along the hind margin including five yellow spots. Fringe white.

It belongs to the group of which P. Mesentina is the type, and has much affinity to that species.

Harkeko.

6. *Pieris Daplidice*, Linn. Wâdy Gennèh, Mount Sinai. Inhabits also Europe, Syria and Caschmere.

7. *Pieris Hellica*, Linn. Hor Tamanib, Harkeko, Wâdy Nash, Mount Sinai. Inhabits also S. Africa.

8. *Anthocharis Protomedia*, Klug, Symb. Phys. pl. 7, f. 13—16. Cairo, Hor Tamanib, Akeek Island. Inhabits also the region of the White Nile, Ambukohl and Arabia Felix.

The genus Anthocharis is especially Arabian and S. African.

9. *Anthocharis Belemia*, Esper. Cairo. Inhabits also S. Europe and Syria.

9a. *Anthocharis Keiskamma*, D'Urban. Hor Tamanib, Akeek Island. Inhabits also S. Africa.

10. *Anthocharis Evarne*, Klug, Symb. Phys. pl. 6, f. 4. Hor Tamanib, Harkeko. Inhabits also Ambukohl. Very closely allied to A. Keiskamma, and apparently blending with it. The female is variable in size and in markings.

11. *Anthocharis Eupompe*, Klug, Symb. Phys. pl. 6, f. 11—14. Cairo, Hor Tamanib, Akeek Island, Harkeko. Inhabits also Dongola, Abyssinia, Mount Sinai, and Arabia Deserta. Distinguished from A. Ephyra (Klug, Symb. Phys. pl. 6, f. 9, 10) by the black border on the inner side of the orange patch.

12. *Anthocharis Daira*, Klug. Symb. Phys. pl. 8, f. 4. Harkeko. Inhabits also W. and S. Africa and Arabia Felix.

Closely allied to A. Omphale. The female is nearly allied to A. Liagore (Klug, Symb. Phys. pl. 6, f. 5—8), and is very near A. Eupompe.

13. *Anthocharis Antevippe*, Boisd. Sp. Gén. 572, pl. 2 e, f. 3. Hor Tamanib.

14. *Anthocharis Eulimene*, Klug, Symb. Phys. pl. 7, f. 5—8. Hor Tamanib. Inhabits also Ambukohl and the region of the White Nile.

15. *Anthocharis Halimede*, Klug, Symb. Phys. pl. 7, f. 12—15. Cairo, Harkeko, Tajora. Inhabits also the region of the White Nile, Arabia Felix, and Arabia Deserta.

16. *Idmais Fausta*, Oliv.; Klug, Symb. Phys. pl. 8, f. 9—12. Hor Tamanib, Mount Sinai.

17. *Idmais Dinamene*, Klug. Symb. Phys. pl. 6, f. 17—18. Hor Tamanib. Inhabits also Angola, Arabia Deserta, and Hindostan.

18. *Idmais Chrysonome*, Klug, Symb. Phys. pl. 7, f. 9—11. Hor Tamanib. Inhabits also Ambukohl and Congo.

19. *Idmais Senegalensis*, Boisd. Harkeko. Inhabits also Senegal, Sierra Leone and Ashanti.

Several nearly-allied species inhabit W. and S. Africa.

20. *Idmais Arne*, Klug, Symb. Phys. pl. 7, f. 1—4. Hor Tamanib. Inhabits also Congo and Ambukohl.

21. *Colias Edusa*, Fabr. Mount Sinai.

22. *Colias Hyale*, Linn. Akeek Island, Harkeko.

23. *Terias Senegalensis*, Boisd. Harkeko.

24. *Callidryas Buqueti*, Boisd. Hor Tamanib. Inhabits also Congo.

25. *Callidryas Florella*, Fabr. Cairo, Hor Tamanib, Harkeko, Akeek Island. Inhabits also W. Africa and S. Africa.

26. *Danais Chrysiphus*, Linn. Cairo, Hor Tamanib, Akeek Island, Harkeko, Wâdy Nash.

27. *Diadema Bolina*, Linn. Souakin, Hor Tamanib, Harkeko.

28. *Acræa Liberia*, Cram. — Serena, *Godart* — Manjaca, *Boisd.* Harkeko. Inhabits also Sierra Leone, Congo and Madagascar. A variable species.

29. *Melitæa Didyma*, Fabr. Mount Sinai. Inhabits Europe. It differs somewhat from the typical form, and is nearly allied to another variety which is found in Turkey.

30. *Pyrameis Atalanta*, Linn. Cairo.

31. *Pyrameis Cardui*, Linn. Cairo, Hor Tamanib, Akeek Island. The larva is abundant on the wormwood (Artemisia).

32. *Junonia Œnone*, Linn. Hor Tamanib, Harkeko, Tajora. Inhabits W., S. and E. Africa, and Madagascar.

33. *Junonia Clelia*, Cram. Harkeko.

34. *Junonia Limnoria*, Klug. Rafla. Inhabits Abyssinia.

35. *Hipparchia Theleppana*, Hübn. Inhabits also Mount Lebanon.

36. *Hipparchia Asterope*, Klug, Symb. Phys. pl. 29, f. 11—14. Hor Tamanib, Harkeko.

37. *Hypanis Ilithya*, Cram. Harkeko, Tajora. Inhabits also W. and S. Africa.

38. *Deudorix Livia*, Klug, Symb. Phys. pl. 40, f. 3, 4. Tajora.

39. *Iolaus Tajoraca*, n. Expands 1 in. 6 lin. Purplish blue. Fore wing: a broad stripe along the costa, a broad band along the hind margin, and the apical third part of the wing blackish brown; a black transverse dot at the end of the discoidal cell. Hind wing: a large apical patch and an irregular band along the hind margin blackish brown, the band bordered with white on the outer side, and including in its middle a deep black spot; space along the inner margin bluish white. Under side white; a streak across the tip of the discoidal cell, and two exterior narrow slightly zigzag bands blackish brown. Hind wing: a narrow undulating blackish brown band between the streak and the base; a slender oblique blackish brown streak between this band and the base; first exterior band forming a deep and acute angle near the inner margin; second exterior band interrupted and abbreviated near the inner margin, terminating in a patch near the costa; a deep black spot like that of the upper side; some emerald-green scales between this spot and the posterior angle. Head, pectus, legs, and under side of abdomen white. Allied to I. Balcari. Tajora.

40. *Aphnæus Acamus*, Klug, Symb. Phys. pl. 41, f. 7—9. Cairo, Hor Tamanib. Harkeko.

41. *Aphnæus Tamaniba*, n. Expands 1 in. 1 lin. *Female.*—Æneous-brown. Fore wing blue in some aspects at the base and on the hind half. Hind wing blue, with a narrow brown border in some aspects; an orange spot adjoining the tail into which it extends, bordered on the

outer side with glittering chalybeous. Under side cinereous fawn-colour; several glittering chalybeous spots; a narrow submarginal band of the same hue; some of the spots bordered on the outer side with deep black or accompanied with deep black spots; some black points between the submarginal band and the border; fringe pale cinereous, black at the base. Hor Tamanib.

42. *Lampides Bœtica*, Linn. Cairo, Akeek Island, Harkeko, Mount Sinai.

43. *Lampides Trochilus*, Frivaldszky, H.-Schæff. Pap. f. 224—226. Hor Tamanib, Dahleck Island.

44. *Lampides Theophrastus*, Fabr. Cairo, Hor Tamanib, Harkeko, Tajora.

45. *Lampides Uranicola*, n. Expands 1 in. 3 lin. *Male.* —Brilliant blue; fringe white, black at the base. Under side cinereous-white; a transverse, black, white-bordered streak in the disk; an exterior band of black white-bordered spots; a more exterior band of brown lunules, and a submarginal band of transversely elongated brown spots. Hind wing: a band of black white-bordered streaks between the streak in the disk and the base; exterior band of black spots much more curved than in the fore wing; lunules more slender and more curved; submarginal spots larger, the fifth from the tip mostly covered by a deep black spot, which includes some brilliant blue scales, and is connected on its inner side with a gilded luteous spot. Head, pectus, legs, and under side of abdomen white. Antennæ black, with white rings; tips orange. Mount Sinai. Wâdy Gennêh.

46. *Lampides Ferrana*, n. Expands 1 in. 4½ lin. *Female.*—Æneous-brown. Wings with a blue tinge at the base; a postmedial white band composed of lanceolate streaks in the areolets. Hind wing: hind margin with dark brown spots which include a few chalybeous scales, the spot nearest the posterior angle broadly bordered with ochraceous on its inner side. Under side—A broad white band along the hind margin, including a row of black spots, an exterior zigzag brown band, and a marginal row of brown spots. Fore wing: a transverse black discoidal streak. Hind wing: an antemedial transverse line of three black white-bordered spots; discoidal streak brown, much more slender than that of the fore wing; exterior line of black spots more curved;

the two marginal spots nearest the posterior angle black and chalybeous-speckled like those of the upper side. Wâdy Ferran.

47. *Lampides Ethoda*, n. Expands 1 in. 3 lin. Æneous; a blue tinge at the base of the wings; body dark blue; wings rather short and broad; fringe white. Hind wing: a deep black spot near the tail, which is rather long. Under side brownish cinereous; a transverse streak in the disk and some exterior transverse lines brown, white-bordered. Fore wing: exterior lines three, nearly straight, the third nearly obsolete towards the costa. Hind wing: exterior lines four, slightly zigzag; a black white-bordered dot in the disk near the base; spot near the tail like that on the upper side. Cairo.

48. *Lampides Agave*. Expands 1 in. *Female.*—Purplish blue; a deeper hue at the base of the wings; a marginal black line; fringe white. Hind wing: two black dots on the posterior margin near the posterior angle. Under side white; a deep black streak extending from the base; some transverse brown streaks in the disk; an exterior transverse undulating brown line; a row of five submarginal deep black spots; a brown spot between the third and fourth black spots. Fore wing: an ochraceous streak proceeding from the basal streak; a deep black discoidal antemedial spot. Hind wing: an antemedial band of deep black spots; a deep black spot on the middle of the costa; fourth and fifth submarginal spots with some brilliant blue scales. Hor Tamanib, Tajora.

49. *Lampides Olympusa*, n. Expands 1 in. *Female.*—Æneous-brown; a blackish marginal line; fringe white, brown at the base. Hind wing: three white postmedial lines; first and second macular; third more continuous, submarginal; three ochraceous submarginal lunules, the middle one connected with the inner side of a deep black spot, which is near the tail. Under side white; seven irregular mostly interrupted transverse brown lines. Fore wing: pale cinereous towards the base; a deep black streak extending from the base. Hind wing: a broad pale cinereous space along the costa; four deep black subcostal spots, the fourth with some brilliant blue speckles; two deep black spots in the disk and one on the inner margin near the base; two deep black spots on the posterior margin near the posterior angle, each with brilliant

blue speckles and connected on the inner side with an ochraceous spot. Hor Tamanib, Tajora.

50. *Lampides Lyce*, n. Expands 10 lin. *Female.*—Æneous-brown; posterior margin dark brown; fringe white. Hind wing: a submarginal band composed of white patches; three deep black spots on the hind margin near the posterior angle. Under side white, cinereous towards the base; seven transverse brown more or less irregular lines, the seventh submarginal and macular. Hind wing: two deep black spots in the disk near the base; three deep black spots near the posterior angle, adorned with brilliant blue speckles, bordered with ochraceous on the inner side. Tajora.

51. *Lampides Bura*, n. Expands 10 lin. *Female.*—Æneous-brown; marginal line dark brown; fringe white. Under side pale æneous-brown; eight transverse hardly undulating white lines, the two innermost interrupted and abbreviated. Hind wing: a deep black white-bordered spot in the disk near the base; three larger deep black spots near the posterior angle, adorned with brilliant blue speckles, bordered with ochraceous on the inner side. Tajora.

52. *Lampides Pandama*, n. Expands 1 in. ½ lin. *Female.*—Æneous-brown, slightly tinged with blue, deep blue towards the base; fringe white. Under side white; several irregular or incomplete more or less pale brown bands, some of which have dark brown borders. Hind wing: bands fewer and more irregular than those of the fore wing; two deep black submarginal spots, adorned with brilliant blue speckles, one on each side of the tail. Hor Tamanib.

53. *Lampides Neis*. Expands 9 lin. *Male.*—Æneous-brown, tinged with blue towards the base; fringe dingy white. Under side pale cinereous; a curved transverse postmedial line of deep black white-bordered dots; two exterior lines of brown white-bordered lunules, the second submarginal. Fore wing: dots much larger than those of the hind wing; a discoidal transverse blackish brown streak and an interior deep black dot, both white-bordered. Hind wing: discoidal streak brown; a deep black white-bordered dot between it and the costa; a line of four minute deep black white-bordered dots between the streak and the base. Wâdy Gennèh.

54. *Lycæna Cleodora*, n. Expands 10 lin. *Male.*—Purplish blue, narrowly æneous-brown along the hind border; fringe whitish, brownish at the base. Fore wing broadly

æneous-brown about the tip. Under side whitish cinereous; a transverse pale brown white-bordered streak in the disk and a transverse exterior much outward-curved line of black white-bordered dots; two transverse interrupted submarginal pale brown white-bordered lines; a black marginal line. Fore wing: a black white-bordered antemedial subcostal dot. Hind wing: a black white-bordered costal dot very near the base; a transverse antemedial line of three black white-bordered dots; three black dots near the posterior angle on the more exterior submarginal line. Cairo, Hor Tamanib, Harkeko, Wâdy Ferran, Mount Sinai.

55. *Lycæna Samia*, n. Expands 1 in.—1 in. 1 lin. *Male.*—Æneous-brown; a broad diffuse abbreviated purple stripe extending from the base of each wing; fringe whitish, brownish at the base. Under side whitish cinereous; a brown white-bordered transverse streak in the disk; a transverse exterior line of black white-bordered dots; two transverse submarginal lines of brown white-bordered dots. Fore wing: a transverse black white-bordered dot in the disk at one-third of the length from the streak to the base; exterior line with the dots successively decreasing in size towards the costa, on approaching which it is much retracted; submarginal dots elongated. Hind wing: a transverse curved line of three black white-bordered dots at half the length between the discoidal streak and the base; exterior line much curved outward; interior submarginal line composed of cuneiform dots; dots of the exterior submarginal line towards the posterior angle marked with black. *Female.*—Under side—Fore wing: three antemedial approximate dots instead of one in the disk; dots of the exterior line decreasing less in size towards the costa. Hor Tamanib.

56. *Lycæna Itea*, n. Expands 11 lin. *Female.*—Purplish; wings towards the base and body dark blue. Wings with a narrow æneous band along the hind margin; fringe white. Under side cinereous; a black subcostal postmedial dot; a transverse pale brown white-bordered streak in the disk; some exterior interrupted incomplete transverse pale brown white-bordered lines; marginal line black. Fore wing: four exterior lines, the second much shorter than the others. Hind wing: a black basal streak; an antemedial transverse line composed of three black white-bordered dots; subcostal dot much larger

than that of the fore wing; five exterior lines, the fifth with two black dots near the posterior angle. Cairo.

57. *Spilothyrus Marrubii*, Ramb. Faune Andalusie, pl. 12, f. 3, 4. Mount Sinai.

58. *Pelopidas Midea*, n. Expands 1 in. 8 lin. *Female.*—Brown. Head, pectus and under side of abdomen white. Fore wing: ten silvery white hyaline marks in the disk; seven of them in two groups, nearer the costa and smaller than the others; first group composed of three elongated spots, nearer the base than the second group, which is composed of four dots arranged in a transverse streak; the three other spots elongated and forming an oblique transverse streak. Cairo.

59. *Cyclopides Phidyle.* Expands 1 in. 5 lin. *Male.*—Ferruginous-brown. Head in front and body beneath luteous. Fringe cinereous, brown at the base. Fore wing: a darker irregular band, which is rounded and concise on the outer side and there emits a longitudinal streak, the latter connected with a short anterior band, which is dilated on the costa; a darker band along the hind margin; some white hyaline marks in the disk arranged in three clusters; first cluster composed of one or two dots, nearer the base than the second, which is transverse and composed of two or three dots; third cluster between the other two, but much more remote from the costa, composed of a spot and a dot. Hind wing: three darker macular bands; an entire darker marginal band. Under side luteous. Fore wing: a brown patch in the disk; two irregular exterior bands, the first broader than the second, which is marginal. Hind wing: three irregular bands of brown spots. Hor Tamanib.

60. *Pamphila Proclea*, n. Expands 1 in. 3 lin. *Female.*—Brown. Body beneath and legs white. Wings ferruginous-brown, darker at the base; fringe white, brown at the base. Under side brownish cinereous. Fore wing: a discoidal streak, retracted in front, composed of four whitish indistinct spots. Cairo.

61. *Nisoniades Doris*, n. Expands 1 in. 1 lin. *Female.*—Brown. Head in front, body beneath and legs white. Antennæ white; tips black. Abdomen with a white band on the hind border of each segment. Wings with white markings. Fore wing: two spots in the disk, the first near the base; an irregular exterior band composed of four spots and two dots;

a submarginal band composed of eight dots; fringe alternately brown and white. Hind wing: a spot near the base; an exterior band of three spots; a submarginal band like that of the fore wing; fringe white. Under side—Fore wing: costal space whitish; markings much like those of the upper side. Hind wing æneous fawn-colour, largely white along the inner margin; markings much like those of the upper side. Tajora.

FRANCIS WALKER.

Entomological Notes, Captures, &c.

Dianthœcia Barrettii. — Referring to Mr. Moore's paper in the February number of the 'Entomologist' (p. 30), my friend Mr. Barrett, of Norwich, the discoverer of the insect which bears his name, writes as follows; and the circumstance he mentions is so curious that I trust he will pardon the liberty I take in asking you to record it: — "What strange coincidences do occur! On referring to my diary I find that the very day on which Mr. Moore found his two larvæ, 10th June, 1861, was the date of my capture of the first Barrettii at Howth Lighthouse. It seems very singular that both Barrettii and Capsophila should be found in the larva and perfect state at the same time." I shall be glad if Mr. Moore will supplement his interesting note by stating where he captured his specimens of Barrettii, and also say the dates on which his moths emerged from the pupa in the spring of 1862.—*Edwin Birchall; Newlay, March* 12.

Variety of Larentia multistrigaria.—A male specimen of Larentia multistrigaria came out yesterday in one of my cages nearly black.—*Henry Doubleday; March* 8, 1870.

Curious Fact in the Emergence of a Moth. — I had a healthy-looking male specimen of Eriogaster lanestris come out in my breeding-cage last Sunday evening (13th of March). Immediately after leaving the pupa-case it crawled up a twig, and remained stationary until its wings were expanded to their natural size, but were still quite limp: at this time a female of its own species, which was in the breeding-cage at the time, knocked its newly-emerged mate from its perch by fluttering around it; it soon, however, regained its former position, and extended its wings as they were before its sudden tumble. But as I watched it I noticed that instead of its wings becoming stiff and ready for flight, they gradually diminished in size, until, in about a quarter of an hour from the time of its fall, they were exactly the same size as they were when it emerged from the pupa-case. Has the fact of a moth's wings decreasing in size after they had grown to their full extent been recorded? — *M. A. J. Pitman; 8, Dacre Park, Lee, Kent.*

Locust near Halifax.—As Mr. W. Elliott, gardener, Queensbury, near Halifax, was pursuing his occupation in the course of last week, he heard something flying near him, which he imagined to be a bird, but which proved to be a fine locust, and which he captured. Its body was fully two inches long, and its wings, when closed, extended half an inch beyond that measurement.—*Halifax; September* 4, 1869.

Locusts in Aberdeenshire. — Locusts sometimes occur in Aberdeenshire along the coast, and as far west as Balmoral, where I saw large quantities on the way to Loch-na-gar last autumn. I am sorry that I can send you but a mutilated specimen.—*W. C. Angus;* 130, *Union Street, Aberdeen.*

[Mr. Walker has examined this specimen with his usual care, and pronounces it to be Pachytelus migratorius, as stated in the 'Year-Book,' p. 17, where Mr. Walker has a most valuable paper on our British locusts.—*E. Newman.*]

Cucullia Chamomillæ bred. — This morning (March 9th) I found a fine specimen of Cucullia Chamomillæ (just out from the chrysalis) in my breeding-cage; and as I think it is rather early for that species to appear (more especially considering the severity of the season), perhaps you might deem it worthy of a notice in the 'Entomologist.'—*John Gatcombe;* 8, *Lower Durnford Street, Plymouth, March* 9.

Leucania vitellina and Catocala Fraxini at Canterbury. —I took a fine specimen of Leucania vitellina on the 7th of October, 1869. On the 14th of the same month I took a large specimen of Catocala Fraxini. I sent both specimens alive to Mr. Harper, of Hyde Park: he said he would write to you, but as no notice of their capture has appeared I conclude that he forgot to do so. — *G. Parry; St. Paul's, Canterbury.*

Dormice at Sugar. — Whilst collecting in the Forest with a friend in the early part of July last, my friend and I were somewhat astonished, on making our respective rounds of the sugared trees, to each find a dormouse regaling itself on the sugar. On the following evening, sugaring near the same spot, I had two more come, one of which (apparently rather the worse for the mixture which it had been imbibing) I had no difficulty in capturing with my net. Not having before heard of an instance (among the numerous visitors which are occasionally attracted by the sweet compound) of a member of the family Mammalia being so attracted, I send a note of the occurrence, and shall be glad to hear if a similar one has come under the notice of any other entomologist.—*Wm. J. Argent; Fern Cottage, Wanstead.*

[On a former occasion, when I requested to see the mice attracted by sugar, they proved to be longtailed field-mice (Mus sylvaticus), and not dormice: I trust my correspondent has not made this mistake.—*E. Newman.*]

Nyssia hispidaria at Richmond Park.—I paid a visit yesterday (March 16th) to Richmond to get N. hispidaria The day was a most suitable one, for I found a score specimens, eighteen males and two females. In limited portions of the Park almost every tree produced an insect: there were three specimens on one small tree, while in other parts an hour's search or more was entirely fruitless.—*J. P. Barrett; 33, Radnor Street, Peckham, S.E.*

Do the Larvæ of Bombyx Rubi feed in the Spring?—*G. McGuffog; 17, Desmond Street, Liverpool, March 10.*

[Mr. Doubleday has kindly favoured me with the following reply:—"The larvæ of Bombyx Rubi do not feed in the spring: they revive and stretch themselves out in the sun for a few days, and then spin their cocoons. It is possible that, if the weather set in cold in the autumn before some of the larvæ were full-fed, these might feed in the spring, but I never saw one attempt to eat anything. Fuliginosa has the same habit."—*E. N.*]

Pupa of Atropos.—I have a chrysalis of A. Atropos that I bought last autumn which is now very lively: would you kindly inform me if it is likely to come out this spring, or remain in the pupa state until October?—*J. B. Jarvis.*

[I have no doubt that the imago will emerge in June.—*E. Newman.*]

Lytta vesicatoria. — I wish to record the capture of a fine specimen of Lytta vesicatoria here in May, 1869. It was crawling on the road in the sun. I am aware it is occasionally taken in the South of England (Rye), and Curtis gives Norwich, Cheltenham, Isle of Wight, and Cambridgeshire as localities. I should be glad to hear if any of your readers have taken it in 1869.—*E. Lc. H. Fox, M.D. Lond.; Broughton, Winchester.—'Science Gossip.'*

Turnip Weevil.—I forward by rail specimens of turnips grown in this parish: the bulbs are more or less covered by a mass of knobs and rugosities, in many cases completely altering their shape and impairing both the quality and growth of the root: each of these knobs or excrescences contains a small white grub, much sought after both by rooks and wood pigeons, which come daily to feed upon them: they break open the knob and extract its inhabitant. I lately examined a field, half of which is sown with yellow and purple turnips in equal proportions, and the other half with swedes; scarcely a bulb had escaped the attacks of this insidious enemy. The swedes, however, had suffered in a less degree than the common and softer turnips. I had some trouble to find a bulb which had not been pierced by the rooks and wood pigeons. In every case the top only of the knob was broken away, leaving just sufficient room to permit the extraction of the grub. Unfortunately this operation is anything but beneficial to the root, letting in both the wet and frost. Evidently the only object of the birds was to get at the grub; but I now see that as the supply becomes exhausted they have commenced digging into the solid bulb, by enlarging the holes from which the grubs had previously been extracted. I have in former years noticed these knobs and rugosities on the bulb of the turnip, but have never considered that they materially injured either the growth or quality of the root. This season is, however, quite an exceptional one, and in some fields scarcely a root has escaped their attacks. In many cases the very shape of the bulb is destroyed, and nothing but a mass of warts and knobs left. The roots sent you are by no means extreme cases. I am strongly inclined to think that this year not only is the quality impaired, but the size of the bulb also considerably lessened. In some cases I find the knobs not only above, but also below, the surface of the ground: the latter position is no doubt occasioned by the frequent horse-hoeings, &c., by which the soil is brought round the bulbs. — *John Cordeaux; Great Cotes, Ulceby, Lincolnshire, January* 16, 1870.

[The cause of the injury in question is a very small blackish weevil, named Nedyus contractus; it was, I believe, first noticed in the 'Entomological Magazine,' 1833, and subsequently in the 'Letters of Rusticus,' at p. 105: in the latter work, after a careful and elaborate description of the turnip nigger (Athalia Spinarum or Centifoliæ), the author proceeds thus:—"The turnip has three other insect enemies: the worst of these is a weevil, a little, black beetle, with a trident, like that of the apple-weevil, but the operations of the turnip-weevil are quite on a different plan: the eggs of this little fellow are laid on that part of the bulb of the turnip which is above the ground, and the grub which comes from it eats into the rind of the turnip, making it hump up into warts and all manner of rugosities, and causing the whole bulb to become woolly and distasteful to sheep and cows. This small and most insidious enemy has escaped the notice of both naturalists and farmers, *first*, because it is so small, and, *secondly*, because its ravages do not cause any diminution in the quantity of either the leaf or the bulb." Since this was originally published this little pest has forced itself into notice, and many entomological writers have recorded it in their lists of insects injurious to the turnips, but I find no additional particulars of its life-history, which I am now endeavouring to render more complete with the materials kindly furnished by Mr. Cordeaux.—*Edward Newman.*]

Greasy Spots caused by Insects in Cabinets. — Can you or any of your readers inform me what is the cause of those greasy blotches made by some insects, such as Pyrameis Cardui, Dicranura vinula, &c., even after they have been in the cabinet for years, and if there is any remedy for it? — *Henry W. Grensted; 3, Brewer Street, Maidstone.*

The American Moth-trap. — I shall be much obliged if you will favour me with your own experience, or that of any of your correspondents, in the 'Entomologist,' as to the success and general working results of "the new and successful American moth-trap," sold by Mr. T. Cooke, of

513, New Oxford Street. — *S. T. C.; Cambridge, March* 8, 1870.

[I have no knowledge whatever of the American moth-trap, and amongst my entomological friends I cannot find any one who has: perhaps some of my juvenile correspondents can furnish a reply; if so I shall consider it a favour.—*E. Newman.*]

Newcastle-on-Tyne Entomological Society. — On the 1st of last month a few gentlemen interested in Entomology met at Mr. W. Johnston's, 48, Dean Street, when a Society, to be called the Newcastle-on-Tyne Entomological Society, was formed, and twenty members were enrolled. As many of the members are beginners in this branch of Natural History, we should be happy to receive larvæ or eggs of southern Lepidoptera from gentlemen having any to spare at any time.—*J. Hamilton, Sec.; 13, Union Street, Newcastle-on-Tyne, March,* 1870.

Abstract of the Proceedings of the Entomological Society, February 7 *and* 21, 1870.

Prize Essays.—It was announced that the Council offered two Prizes, of the value of Five Guineas each, to the Authors (whether Members of the Society or not) of Essays, of sufficient merit and drawn up from personal observation, on the Anatomy or Economy of any insect or group of insects. The Essays must be sent to the Secretary, at 12, Bedford Row, indorsed with mottoes, on or before the 30th of November, 1870, when they will be referred to a Committee to decide upon their merits: each must be accompanied by a sealed letter indorsed with the motto adopted by its author, and inclosing his name and address. The Prize Essays shall become the property of, and will be published by, the Society.

Abnormal Specimens of Satyrus Semele. — Mr. Bond exhibited four specimens of Satyrus Semele, in each of which the marking and coloration of the wings were partly of the male and partly of the female character.

Abnormal Specimens of Anthocharis Cardamines, &c. — Prof. Westwood exhibited two females of Anthocharis Cardamines, each of which had a dash of the orange-colour of the male on one of its fore wings; also a female of Polyommatus Adonis, the left fore wing of which was dashed with blue like the male; also a male of Siderone Isidora, one side of which was partially coloured like the female. The President suggested that the existence of specimens of this kind might be explained on Mr. Darwin's theory of sexual differences. The hypothesis was that the sexes of a species, though now differently coloured, were once alike; the divergence from the original type was sometimes in one sex, and in one direction only; at other times in both sexes, and in opposite directions; and it might be that these curious cases of the union of opposite sexual colours were only instances of a partial reversion, or modifications of reversion, to the original ancestral type.

New British Coleoptera. — Mr. Janson, on behalf of Mr. G. R. Crotch, exhibited Philonthus cicatricosus (Erichson), a species new to this country; and Dyschirius angustatus, Hydroporus unistriatus, and H. minutissimus, all recently added to the British list. The three first-named were captured by Mr. Moncreaff at Portsea; Hydroporus unistriatus had also been taken by Mr. Crotch at Merton, Norfolk; and Hydroporus minutissimus was taken by Mr. Wollaston at Slapton Ley. All these have been previously noticed in the 'Entomologist.'

Catalogue of the Neuroptera of the British Islands. — Mr. M'Lachlan presented the MS. of "A Catalogue of the Neuroptera of the British Isles," the first instalment of the proposed Catalogue of indigenous insects; and on so doing he remarked that the term Neuroptera had been taken in the Linnean sense, as including the three sub-orders or groups known as Pseudo-Neuroptera, Neuroptera-Planipennia and Trichoptera. Of the Pseudo-Neuroptera, the Catalogue of the family Psochidæ was in accordance with Mr. M'Lachlan's own Monograph of the British species, published in 1867 in the third volume of the 'Entomologist's Monthly Magazine,' the synonymy after his own investigations; the Perlidæ had not been very recently revised, and were in an unsatisfactory state, but the Catalogue had been worked out from an examination of such materials as were accessible to the compiler; the family Ephemeridæ had been entirely furnished by the Rev. A. E .Eaton; and the Odonata, including six families, — the Libellulidæ, Corduliidæ, Gomphidæ, Æschnidæ, Calopterygidæ and Agrionidæ, — had been compiled from the works of De Selys Longchamps and Hagen, adopting, however, almost in its entirety, the division of the old genus Libellula originally proposed by Newman. The Planipennia and Trichoptera were catalogued in accordance with Mr. M'Lachlan's Monographs of the British species published in the Transactions of this Society, the Planipennia in the Transactions for 1868, and the Trichoptera in 1865 in the fifth volume of the third series, with such additions and corrections in each case as subsequent investigations had rendered necessary.

Plusia ni. — Mr. J. Hunter exhibited a Plusia, captured by Mr. Stock in the New Forest, and believed to be Plusia ni. (See Ent. Mo. Mag. v. 107; Ent. Ann. 1869, p. 124; 1870, frontisp. fig. 3).

Insect-galls in the Flowers of the Tansy. — Mr. Albert Müller exhibited some insect-galls in the flowers of the tansy: he had received them in September from Mr. Dorville, in whose garden, near Exeter, the growth of the plant was encouraged, from finding that flies, moths and bees resort to it when the flowers are fresh. The galls had been submitted to the author of 'Vegetable Teratology,' and Dr. Maxwell Masters remarked upon them as follows: — "It appears to me that the whole flower (floret rather) has become hypertrophied, and at the same time the stamens, style and ovule have entirely disappeared. I judge the structure to be an altered flower because it springs from the axil of a bract or palea, and because at the summit are five little teeth precisely like those of the corolla. In my book, for the most part, insect deformities are passed over for two reasons; one that I am quite ignorant of Entomology, and the other that the changes produced by insects are often so far foreign to the natural conformation as not to admit of comparison with it. I should, however, have inserted your tansy under hypertrophy of the flower, had I seen it previously." Mr. Müller added that the perfect insect had not yet been bred, but the larva showed it to belong to the Diptera, though not a Cecidomyia.

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Note on the "Gregarious Spiders of Paraguay." By the Rev. O. PICKARD-CAMBRIDGE, M.A.

FACTS are stubborn things, and if reliance is to be placed on the accuracy of Mr. Masterman's observations in regard to the gregarious spiders, of which he writes, in his 'Seven Eventful Years in Paraguay' (Entom. iv. 359), the received theory of arachnologists must undergo considerable tension to admit of his facts. The facts alluded to are, first, that the spiders were "not content with merely sucking the juices of their prey, but devoured the soft parts altogether;" next, "that they swallow every part of their web that may be broken with the wind. If such an accident occurred, the nearest spider gathered up the loose threads, rolled them into a *bale* (query, *ball*), and immediately ate it." Mr. Masterman goes on to say, "I have arrested them in the act, and found that the silk had been abundantly moistened with clear saliva preparatory to bolting it." Against the possibility of spiders doing this is the structure of that part which corresponds to the "throat" in other animals: this, as far as the anatomical researches of arachnologists goes, is a mere tube, and (as quoted by Mr. Birchall from Blackwall) "minute," and "only adapted for the passage of liquids;" but how are we to get over what is stated by Mr. Masterman so minutely and circumstantially? He seems to have particularly directed his attention to those points upon which he states the result of his observations; he "satisfied himself" that they devoured the soft parts of their prey, leaving only the wings of moths and the horny parts of beetles, and "arrested them in the act" of bolting balls of web. If it did not look like presumption to doubt the accuracy of such apparently well-observed occurrences, I would suggest that the shrivelling and speedy disappearance in a hot climate of the soft parts of insects when sucked dry might cause a superficial observer to conclude that the spiders had actually devoured those parts. Again, in regard to the balls of web, spiders when encumbered with a lot of slack threads issuing from the spinners are, in my own experience, in the habit of gathering it up with the hinder legs; and we might suppose that a quantity of broken web encumbering the spider would speedily be gathered up and form a little ball (or bale), which might very probably be transferred to the falces for deportation, in the same way that our common Pholcus phalangioides carries its little bag of eggs in its falces, and a superficial observer might conclude that the transfer of the ball to the mouth could only be for the purpose of its being devoured: all this, however, is but supposition, and will perhaps be held to have no weight against such minutely observed facts as those commented upon: the question seems, therefore, to be whether it is *more* probable that Mr. Masterman's spiders differed in their pharyngeal structure from what is believed to be that of spiders in general, than that Mr. Masterman was mistaken, in spite of his apparently close observations. To most people this issue would leave the matter where it commenced, inasmuch as we have but few examples of spiders whose pharyngeal apertures have been anatomically examined, and no evidence before us of Mr. Masterman's character as an observer in Natural History. For myself I must confess that if the balls of silk did not stick in the spiders' throats, the account given of their free passage certainly sticks in mine, and I do not hesitate to say that it would require the closest and clearest observation of a most skilful and scientific observer to induce me to believe that the structure of any spider's throat could admit of swallowing pieces of solid matter.

In other respects Mr. Masterman's account of the gregarious spiders is graphic and interesting: one other point, however, requires to be noticed. Mr. Masterman states that his spiders had but "four eyes," and Mr. Birchall, in allusion to this, asks, "whether there are any four-eyed spiders known!" Until a few months ago no reliable record of such is believed to have existed: lately a four-eyed genus has been described in the 'Journal of the Linnean Society' (vol. x. p. 398, pl. xiv. 1869), so that it may be Mr. Masterman's spiders really had no more than four eyes, but I am inclined to think that they had others which escaped Mr. Masterman's observation. From his description, I believe his spiders to have been of the genus Nephila, in which there are four conspicuous eyes forming nearly a square in the middle of the fore part of the caput: these would be sure to attract observation, but a pair of smaller ones close together, on each side of the caput at a considerable distance from the central four, would be very likely to escape observation, and the spider would be thus supposed to have but the four seen in the centre.

O. P.-CAMBRIDGE.

Bloxworth Rectory,
March 22, 1870.

Irish Insect-hunting Grounds. By EDWIN BIRCHALL, Esq.

CONNEMARA.

> "This universe shall pass away—a work
> Glorious! because the shadow of thy might,
> A step, a link, for intercourse with Thee.
> Ah! if the time must come, in which my feet
> No more shall stray where meditation leads,
> By flowing stream, through wood, or craggy wild,
> Loved haunts like these, the unimprisoned mind
> May yet have scope to range among her own,
> Her thoughts, her images, her high desires."
> *The Excursion.*

CONNEMARA lies between Lough Corrib and the Atlantic, forming the western extremity of the County Galway, and I venture to draw attention to its entomological productions, principally for the Irish reason that very little is known about them. A few words on the physical geography of the district may interest your readers, not many of whom have perhaps visited this wild and almost uninhabited region; indeed, so wild and irreclaimable does it appear, that when one comes upon a human being amidst its solitudes, it is startling to see him clothed, not in savage attire, or as certain Irishmen are described by Strada in 1586,—"clad only below the waist, and mounted on stilts,"—but in the swallow-tailed coat and chimney-pot hat, which, in spite of their English origin, have such a strange and universal fascination for the Irish peasant.

The central parts of Ireland are occupied by a great tableland of secondary limestone, round the margins of which the mountainous regions are placed: at the point of juncture between the plain and the mountains there are depressions in many cases filled by lakes: thus Lough Corrib separates the plains of Mayo and Galway from the mountains of Connemara; and the Lakes of Killarney, the flat country of Cork and Limerick from the Kerry mountains. Lough Corrib is about twenty miles in length, with a width varying from one mile to ten: it is surrounded on all sides by rocks, which extend under it, but the hollow in which it lies does not appear to have been caused by any disturbance of the strata, as in some cases peculiar beds of rock are traceable across it, and are found at the same level on the opposite sides: it was not worn out by running water, the surface of the lake being only twenty feet above the sea-level, whilst in some parts the lake exceeds one hundred and fifty feet in depth; neither was it corroded out by the chemical action of the water, as the deeper portions are excavated in the granite rock, and the part underlaid by limestone, on which the water would act more readily, is mostly very shallow. It is one of those rock basins which geologists are generally agreed have been ploughed out by moving ice, and apparently owes its origin to glaciers which descended from the Connemara mountains.

From Lough Corrib westward to the Atlantic a wide valley extends for fifty miles, occupied by a chain of lakes; on the south are elevated moorlands; on the north the great mountain masses of Bennabeola, or the "Twelve Pins," some of them glittering pyramids of quartz rock 2300 feet in height. The shores of the lakes are mostly rocky and barren, without tree or bush, although there is nothing in the soil or climate to prevent the growth of timber; the woods which formerly clothed the country have, I believe, been cut down by the peasantry for fuel, but the islands in the lakes which were not accessible are still covered with luxuriant vegetation. Near Kylemore Lake the country is better wooded, and there is also a comfortable inn, much resorted to by anglers; and what little information I possess respecting the insect fauna of Connemara has been obtained in this neighbourhood, but so incessant is the rain that only those who can afford time to wait for an interval of fine weather are likely to have much success in collecting. I have noticed that the insects of rainy districts, like those of alpine heights, have a wonderful knack of availing themselves of gleams of sunshine, and that in such regions a few bright hours will make amends for many wet and gloomy days.

The following Macro-Lepidoptera have been observed in Connemara. I omit some species of universal occurrence, but mention others usually considered very common, thinking that a knowledge of their comparative abundance or scarcity in this remote locality may not be without interest:—Gonepteryx Rhamni, Clydach, Lough Corrib; seen in some numbers by the Hon. Emily Lawless, in August, 1869. Chortobius Davus (*var.* Typhon), very abundant throughout the district. Thecla Rubi, frequents furze-bushes, and on dark days can be taken in hundreds at rest. The following Diurni also observed: — Brassicæ, Rapæ, Napi, Cardamines, Aglaia, Artemis, Urticæ, Io, Atalanta, Cardui, Ægeria, Megæra, Semele, Janira, Pamphilus, Phlæas, Alexis, Argiolus. (Twenty-one in all.)

Smerinthus Populi (apparently scarce), Acherontia Atropos (not uncommon), Sphinx Convolvuli (occasional), Chœrocampa Porcellus and Elpenor (very common), Macroglossa Stellatarum and Bombyliformis (common),—the latter noticed by the Hon. Emily Lawless flying in great numbers round the flowers of the buckbean (*Menyanthis trifoliata*), near the Great Killery, in May, 1869,—Hepialus hectus (common), H. velleda (in countless swarms), Zygæna Filipendulæ (common), Lithosia complanula (occasional), Setina irrorella (common), Euchelia Jacobeæ (common), Euthemonia russula (very common), Arctia fuliginosa and A. Menthrasti (very common), A. lubricepeda (much less frequent than preceding species), Bombyx Callunæ and Rubi (both extremely common), Odonestis potatoria (much less so), Saturnia Carpini (not common), Boarmia repandata and rhomboidaria (both common), Scodiona belgiaria (very common), Aspilates strigillaria (very common), Eupithecia subumbrata, Melanippe albicillata, M. hastata, M. tristata, Tanagra chærophyllata, Platypteryx lacertula, Dicranura vinula (scarce), Pygæra bucephala (scarce), Notodonta camelina (not uncommon).

The following Noctuæ have been noticed; most of them occur commonly:—Derasa, Batis, Psi, Ligustri, Rumicis, Fulva, Nictitans, Pallens, Suffusa, Saucia, Graminis, Strigilis, Expolita, Adusta, Dentina, Silago, Cucubali, Lucipara, Lutulenta, Umbratica, Myrtilli, Unca, Triplasia, Festucæ, V-aureum, Mi, Ænea, Exoleta, Vetusta.

The foregoing list certainly includes little more than the most abundant species in Connemara, for what with the rain, the absence of hotels, and the distracting influence of grand scenery, no careful examination of the district has yet been made. The Great Killery is within a morning's walk of Kylemon, and is the best example of a fjord that I have seen, or which I believe exists, in the British islands: this narrow inlet of the sea runs ten miles into the land, and is hemmed in by lofty walls of red sandstone rock: the mountain of Mulrea at the entrance of the fjord is 2700 feet in height; rising abruptly from the water it is truly a sublime object; so steep are its precipices that I believe a stone rolled from the summit would plunge into the sea at its base. Further north the counties of Mayo, Sligo, Donegal and Derry, are all but totally unexplored by entomologists: when better times come I trust an effort will be made to learn something of their insect-life. Erebia Cassiope occurs freely on Croagh Patrick, near Westport, in Mayo, and other local species will doubtless be found to accompany it. I would also point out the wild country round the Nephin Mountains as likely to repay a careful examination.

EDWIN BIRCHALL.

Newlay, April 6, 1870.

Varieties and Aberrations of Lepidoptera.

By C. S. GREGSON, Esq.

(Continued from Entom. iv. 54.)

GEOMETRÆ.

SOME friends acquainted with my collection complain that I have omitted naming many specimens of varieties which they think very interesting, but which I have thought hardly worth calling attention to; and, to keep these notes within bounds, I shall have again to pass over all slight variation, naming only such as are striking or belonging to species not subject to variation.

Rumia cratægaria. Of this species I have one yellow, without the usual brown markings or the central stigmatal mark; one having all the usual markings on a whitish citron ground; and one in which the deep colour runs along the costa, forming a streak of brown, the hind wings having a distinct central fascia.

Ennomos lunaria. One specimen fine coloured and normal, except one hind wing, which is free from colour or markings.

E. angularia. A female immaculate creamy; two females citron, with the central band faintly indicated, normal; one female with citron central band, dark triangular base on the costa, apex on the hind margin. This is a variable species, and I possess a fine series, bred from eggs kindly sent to me by Mr. Hind.

E. fuscantaria. One specimen very dark.

E. tiliaria. One small female, measuring about ten lines, is the only variety I ever saw of this species.

Crocallis elinguaria. One male, with broad central band dark.

Himera pennaria. One male having three distinct fasciæ across the fore wings; a female with central mark contracted, forming a narrow band; a female just contrary-wise, forming a very broad central band, much expanded on the costa. A rather variable species.

Angerona prunaria. A very variable species, which does not occur in our northern district, and of which I have few specimens. One male deep rich brown, with rich orange central mark, and one large female light buff irrorate (obtained by purchase) are the most striking varieties I possess.

Mæsia belgiaria. One dark male, and one large female in which the central fascia forms a good greyhound's head, the base of the head being on the costa, are all the variation I have seen amongst thousands of specimens examined.

Fidonia piniaria. Of this variable species I have a few extreme varieties.

F. atomaria. Of this abundant species, in which no two specimens can be said to be exactly alike, yet rarely varies beyond a given point, in my collection are about ten extreme aberrations. One female, light coloured, measures five lines in expanse; another female, very light-coloured, measures twelve lines; and another, brown, slightly irrorated with whitish atoms, twelve lines; one female, eleven lines, of a dark brown colour, with the thorax, abdomen, and wings as far as the centre, of a rich purple-brown, beyond a broad light fascia containing a slight brown stria; two small males, one rich dark brown, and one reddish brown, irrorated with whitish atoms; one female in which the dark markings being larger and more pronounced than usual, on a clear light ground, gives the specimen a very peculiar appearance. These are the results from many thousands examined.

Anisopteryx æscularia. Does not vary much here: I have only three which can be said to be marked varieties.

Hybernia leucophearia. In a series of thirty-six specimens, I have varieties from very light to deep rich brown, no two specimens being exactly alike.

H. progemmaria. Of this species I may say the same as of H. leucophearia, except perhaps that the last four specimens in the series are alike, being of a deep rich ochreous-brown. The same remarks apply to the females: they vary from light buff to dark brown.

H. defoliaria. Another variable species, which is represented in my collection by a long series of varieties.

Phigalia pilosaria. The only aberration I have ever seen in this species is in a small male obtained from Mr. Hodgkinson: the thorax and abdomen are of a deep umber-brown colour; the wings dark umber-gray, without markings: a very peculiar insect.

Nyssia hispidaria. Two specimens dark umber-brown.

N. zonaria. Among the many thousands of this species I have seen I have only been able to find about half-a-dozen specimens worth calling varieties: one male nearly white and one female nearly all dark brown are the best. One gymnandromorphous specimen, the male on the right side, fell to my lot on one occasion.

Biston prodromaria. A light male, the rich deep brown marking replaced by rather bright red, and the under wings very light, is the only variety of this species I have seen.

B. betularia. In a row of twenty-four before me there are three males and three females nearly white; the size varies from 1¼ inch to 2¼ inches; six males dark; four females light, with dark distinct markings; and under them eight females dark and darker, but still slightly irrorate. In the next row are twenty-four specimens, the upper ones having brown fore wings, but suffused or irrorate hind wings: these are followed by deep rich brown males and females, having only the peculiar or almost ever-present white shoulder-mark; the last one without this mark, and with the face (always white) rather dirty-looking.

Boarmia repandaria. A variable species in some places, not in others—a species which appears as permanent varieties or races in given places: thus around Lytham the specimens have always a yellowish suffused appearance, markings not well defined; in Denbighshire the ground-colour is light and the markings distinct, but never banded, as they often are in the south (this is Haworth's destrigaria?); and in South Lancashire and Cheshire they appear as a family of sweeps, rich dark smoky suffused specimens, having the zigzag posterior marginal line distinctly defined: in a series of thirty specimens before me are eight of this variety, all very dark, yet no two exactly alike; one poor destrigaria, given to me by Mr. Allis, and two nearly white, one much like Tephrosia biundularia, to which we now turn. In a series of thirty-two specimens there are fourteen good and striking varieties, three of which are very light creamy white, with faint markings, and the others are rich smoky brown of various shades; the darkish specimen, given to me by Mr. Capper, has a distinct light submarginal line all round.

Tephrosia laricaria (crepuscularia). I have one very light-coloured specimen, and several having a broad dark band where usually is the single line and patch: these were bred and given to me by Mr. Doubleday.

Gnophos obscuraria. This is another species which assumes a slightly different appearance in different localities: at Bidston Hill, Cheshire, it is of a rich-coloured deep brown, with stumpy short wings; on Wallasey Hill it is a warm ochreous-brown, long-winged insect; in Denbighshire it appears as a bluish gray suffused insect, with the light mark on the costa well pronounced, whilst Bidston specimens are without this mark, and in the south it is often an ashy-coloured, smooth, well-marked insect (the serotinaria of Stephens), only one specimen of which I possess.

Larentia didymaria. A series of this species from mountainous districts are much better marked than my lowland specimens.

Venusia erutaria. One specimen dark along the costa, and with a broad dark band across the wing, is the best marked variety I have seen: purchased at Bolton.

Coremia unidentaria? One specimen, supposed to be of this species, has a dark triangular central mark across the wing, the base, points on the costa and inner margin, and the apex on the discoidal nerve; all else plain. A most peculiar insect; from Mr. Hodgkinson.

C. propugnata. Three fine specimens, having very narrow central bands, contracted in one of them to a mere line from the centre to the inner margin.

Melanippe montanaria. One small specimen without markings, given to me by Mr. Buxton: one large creamy white specimen, with a square dark blotch from the costa to the discoidal cell: purchased from King.

M. fluctuaria. A variable species: one creamy white specimen with a costal central patch and indication of usual costal mark near the tip, is all I need mention.

M. galiaria. One beautiful variety, creamy white, with the linked band distinct; no other striæ or colour upon either upper or lower wings: the only aberration I have seen of this species.

I may leave the variable Theras, and say of Harpalyce silacearia, "several varieties."

Melanthia ocellaria. One small specimen with a narrow band.

Cidaria corylata. Of this species I never saw an English variety, and have seen very few Scotch specimens that were not varieties, always approaching the "albocrenata" form of Curtis.

Cidaria popularia. Lancashire specimens light; Welch specimens well marked, dark; four Scotch specimens brown, without markings.

C. testata. One large specimen, dark purple.

C. russaria. A variable species.

C. immanaria. Also variable: here I have bred it from nearly black to very light from the same batch of eggs.

Ypsipetes elutaria. Another variable species: when fed upon whimberry or cowberry it is a most distinct-looking insect, often with the white patches placed in a triangle, one on the disk, one on the hind margin, and the usual one: no band.

Y. impluviata and L. cæsiata vary more in colour than in form of markings: I have them from very light to almost black. A variety of the latter, which I call "nigristiaria," with deep blackish brown central band, is common on the Lancashire moors, whilst Moel Vamma (Welch) specimens rarely show the broad band darker than the other parts of the wing.

Oporabia dilutata. Varies in some woods, and has abro dark band, whilst in others it scarcely varies at all.

O. filigrammaria. Varies much in size. I have it from very light to very dark.

Lobophora lobulata. Is usually a plain unvarying species, but I have six fine varieties, by which I see that in Scotland it is sometimes a very handsome insect, with a broad very dark band across its wings.

Camptogramma bilineata. By taking a great number of specimens, over a series of years, I have secured seven good varieties.

Melanippe hastaria. One specimen before me reminds me of a species not yet recorded as British, and another exceeds its fellow quite one-fourth of an inch in expanse, and has less black upon it.

M. tristata. Of this unvarying species I have several striking forms; one in which the central band is broken on one side slightly, and on the other very much, so as scarcely to form a band; and one in which the central bands are broken, and the outer margins rayed inwards. Scotch specimens of this species are tinged with ochreous.

Emmelesia rivularia. I have one small dark brown specimen; one large dark brown female, without any white striæ or bands; several dark, with very narrow light fascia.

E. bifasciaria. One with a dark mark on the costa, which, joining the central fascia, and destroying the first light fascia, makes it a unifasciaria of Haworth?

Cabera pusaria. Two specimens having only two dark striæ across the wing; one having four; several undoubted pusaria, bred, having the fascia approaching each other (*var.* rotundaria?).

Abraxas Grossulariata. Amongst a series of above one hundred and fifty picked specimens, there are about fifty striking varieties, from pure creamy white, without any markings, to deep dead black, with only a narrow white fascia on the upper wing, and a broad white patch on the under wings: between these extremes come some most interesting forms, which it would be a waste of space to describe; my last addition being a pure white one, with a yellow band through it, given to me by Michael Ward.

A. ulmata. In a series of fifty specimens there are about twenty-five good varieties: the first dozen are the variety called pantaria by English authors, not of Linneus: amongst the others is one with one dark upper wing; one with suffused smoky wings; one smoke-coloured all over, except near the base of the wings; and one pure lead-colour, with the usual markings intensified.

A. pantaria, *Linn.* One small specimen taken at the Isle of Man in August.

Ephyra trilinearia. One peculiarly striated specimen.

E. punctaria. One blotched specimen.

E. orbicularia. One suffused specimen.

Eupithecia pulchellaria. One distinctly single-banded specimen, given to me by Mr. Hodgkinson, the only variety I ever saw of this species.

E. nanaria. One single-banded specimen, given to me by Mr. Hague: a beautiful variety.

E. subfulvaria. Many varieties.

E. assimilaria. One good variety.

C. S. GREGSON.

(To be continued.)

Entomological Notes, Captures, &c.

Mecyna polygonalis, Hüb.—Some time since my friend Mr. Newman sent me a sketch of a Pyralis which had been captured by the Rev. A. H. Wratislaw, near Bury St. Edmunds, and asked me if I could name it for him. I told him it was Mecyna polygonalis. In the 'Year-Book' it is given under the name of Scopula fulvalis, to which it bears no resemblance. Mr. Newman appears to have made this mistake through hastily reading a remark of Guenée's, that a specimen of fulvalis stands in the Vienna Cabinet under the name of polygonalis.—*Henry Doubleday; Epping, April* 19, 1870.

[I am much obliged for the correction, which was evidently needed.—*E. Newman.*]

In the matter of D. Barrettii.—Mr. Moore has shown me the Dianthœciæ mentioned by him in the February number of the 'Entomologist' (Entom. v. 30), and they are most undoubtedly varieties, but very extraordinary ones, of D. conspersa. These are what he had always considered them to be, until when recently he was informed that they were D. Barrettii. These varieties were exhibited by me at a recent meeting of the Entomological Society, and in the same box were placed specimens of D. Barrettii and conspersa (types), from the former of which they were readily distinguished. With regard to my friend Mr. Barrett's "strange coincidence" (Entom. v. 57), although it does not apply to Barrettii, it may be mentioned that both larvæ and imagos of D. carpophaga are to be found at the same time, and larvæ of Carpophaga and Capsincola captured in June often produce moths in the two following months, although the majority hybernate in the pupa state.—*Howard Vaughan; Kentish Town, April* 13, 1870.

[As I have thoroughly examined these specimens, and, in common with others present at the examination, arrived at a different conclusion to Mr. Vaughan, I think that gentleman should scarcely state so decidedly that they are "undoubtedly" D. conspersa. I would rather suggest that in such a case as this, where opinions differ widely, the insects should be submitted to a competent Lepidopterist, such as Mr. Doubleday, for his decision.—*E. Newman.*]

Nephopteryx angustella.—The imago appears at the beginning of May, and continues on the wing till nearly the end of June. In the hot season of 1868 a second brood appeared in September and October. The egg is deposited on the fruit of the spindle tree, generally on the under side, and frequently between two berries. As soon as the larva is hatched it eats its way into the berry, and closes the entrance with a thin coating of silk; consequently in its early stages it is rather difficult to find, but as it increases in size it generally removes to another berry; its presence may then be detected by the frass protruding from the hole through which the larya has eaten into the fruit. I believe it to be a very local insect; I only obtained it after a diligent search in five seasons in several counties. It has been stated by our continental friends that the larvæ of this species enter the earth to undergo their transformations, but the first I met with (about twenty) all spun their cocoons at the top of a large glass cylinder, covered with gauze, placed over a pan of earth and moss. In 1868 the larvæ were far more numerous, and it occurred again in its old locality at Darenth, and also in Surrey. It is flesh-coloured, with a tinge of rose-colour along the back, and is generally full fed at the end of September and through October, and in 1868 larvæ were to be obtained till the end of November. By putting a supply of rotten wood into my breeding-cages I have been very successful in breeding this insect, nearly every larva producing a moth.—*Wm. Machin; 21, Argyle Road, Carlton Square, Mile End.*

Lateness of the Season.—On the 12th of April I took two fine A. prodromaria, evidently only just out of the chrysalis, at rest on oak trunks, at about five o'clock in the afternoon. —(*Rev.*) *A. H. Wratislaw; School Hall, Bury St. Edmunds, April* 16, 1870.

Does Bombyx Rubi feed after Hybernation?—A friend has just forwarded to me the current number of the 'Entomologist,' and curiously enough it answers the very query I have several times lately put to myself, *viz.* When does the larva of B. Rubi feed up? I was greatly puzzled last year, for on the 20th of May my wife found a larva of Rubi, evidently only about half-grown, which *did feed*, though not heartily, on bramble: unfortunately it died from a hurt. In the first week of June I took the perfect insect plentifully, some specimens being already worn. Consequently I was much astonished, as I did not consider twelve or fourteen days would have been sufficient for the feeding up, metamorphosis and emergence of my solitary caterpillar. Probably the individual was an instance of the exception which Mr. Doubleday supposes might happen.—(*Rev.*) *Alex. Nash; Hardwicke, Gloucester, April* 5, 1870.

Xylomiges conspicillaris at Malvern Link.—I was much gratified to find a splendid male specimen of Xylomiges conspicillaris in my breeding-cage on Friday last, which is the third I have bred in the last three years, *i. e.* one every year. —*Thomas Goodyear; Church Road, Malvern Link, April* 20, 1870.

Collecting Lepidoptera Abroad.—I think that it would be very useful to a great many Lepidopterists who may spend their holiday abroad, if gentlemen who have some experience in foreign collecting would give them the benefit, through your valuable journal, of what they consider the best plan of preserving butterflies and moths, so as to bring them home as perfect, and also in as little space, as possible. To set them out while on a journey is out of the question, as it takes up more time than one can spare: there are also objections to pinning them as caught into a store-box lined with cork, as there is a chance, however well the pins are driven into the cork, that one at least of the insects would be shaken out in any long journey, during which one's luggage gets much knocked about, not only destroying the specimen but injuring considerably the remainder of the collection.—*S. N. C., jun.*

Economy of Stigmonota Weirana.—The reason this insect flies about the beech is because that tree furnishes the food of the larva. I have been acquainted with it for years past: it feeds between united leaves. Its body is whitish, the dorsal vessel green, and the mouth reddish brown; the head is pale brown, with the hind lobes darkish; the back of the second segment is somewhat tinted with brownish. The larva is always common on the beech trees in Epping Forest: in some seasons it is very abundant. It feeds during the months of September and October. As the larva grows older it presses other leaves into its service, fastening them together by silken cords: on arriving at its adult state it either descends to the ground to undergo its pupation or else spins up between the leaves; in the latter case it constructs for itself a white silken cocoon, to which it adds an external coating of frass. Shortly after the completion of its cocoon it passes into the chrysalis state: at the end of the following May the imagos, which, by the way, are very easy to rear, begin coming out of their cocoons.—*Chas. Healy; 74, Napier Street, Hoxton, N.*

Phoxopteryx Mitterbacheriana. —Whilst engaged collecting the larvæ of Stigmonota Weirana, we may meet with the larvæ of this "vaulted chamber maker" of the oak, inhabiting similar dwellings on the leaves of the beech, at Bishop's Wood, Hampstead: it also occurs on birch. —*Id.*

Description of Argyrolepia luridana, Gregson, *a Tortrix new to Science.*—Expands about three-eighths of an inch. Antennæ short. Palpi, face, head and thorax whitish straw-colour. Upper wings silvery straw-colour; near the base a faint ochreous indistinct striga, then a well-defined broad central band reddish ochreous, cut inwardly in the centre of the outer edge by a light triangular notch, which forms the base of a square in the band from costa to notch; below the cut is a rather dark dot on the outer edge of the central band, then a slight suffused mark below the disk and a large shapeless patch near the tip of the wing, darkest upon the costal edge; point of wing light; cilia suffused. Under wings silvery gray. Several specimens first taken by Mr. Hodgkinson, early in May, at Witherslack, Westmoreland, and again when we were there together on the 18th of May, 1869.—*C. S. Gregson; Fletcher Grove, Edge Lane, near Liverpool, April* 11, 1870.

Deiopeia pulchella near Reading.—One of our boys has managed to secure a very poor specimen of Deiopeia pulchella, caught near Reading last year: it has every appearance of being a really genuine one: a second specimen was also obtained, but being broken in its journey to Marlborough was not preserved.—*(Rev.) T. A. Preston; Marlborough College, March* 31, 1870.

Adela cuprella.—Adela cuprella is now more abundant and generally distributed over Wimbledon Common than I have seen it since 1866. The distribution is no doubt much increased by the unusual fineness and warmth of the weather, which causes the insects to be more active and to fly from bush to bush, whilst on cold days they do not fly, but remain at the sallow they happen to be on. Probably the apparent abundance is partially due to the same cause, as G. Rhamni is also much more plentiful than usual, and that insect is certainly a product of last season.—*N. C. Tuely; Mortimer Lodge, Wimbledon Park, S.E., April* 21, 1870.

Vanessa Polychloros at Anerley.—When walking through Anerley this morning, I was pleased to see a specimen of V. Polychloros. This was a very common insect in the Anerley woods twelve or thirteen years ago, but since then I have never seen a single specimen in that locality. Perhaps it may turn up again this season. Rhamni and Urticæ were both out.—*H. Ramsay Cox; West Dulwich, S.E., April* 6, 1870.

Dianthæcia Barrettii or conspersa.—I should have been very glad to have complied with Mr. Birchall's request that I would give the locality of my captures of D. Barrettii, as therein lay the chief interest attaching to the capture (and I omitted to do so in the first instance inadvertently). I hoped I had found an English locality, *viz.* coast of North Devon, but it is the opinion of all who have since seen my insects that they are not D. Barrettii, but varieties of D. conspersa, "The more curious," Dr. Knaggs says, "as they closely resemble D. Barrettii in colour." Through the kindness of Mr. Howard Vaughan, I have been able to compare my insects with specimens of D. Barrettii, and I quite concur in the opinion that my specimens are not referable to that species. It is somewhat interesting to note that my description of the larva, written entirely from memory, agrees with the description of that of D. conspersa (Gu.) in Stainton's 'Manual.' I must also correct the announcement of the capture by me of A. circellata at Tunbridge Wells, the insect so named being a variety of A. bisetata.—*Henry Moore; 8, Sheffield Terrace, Kensington, W., April* 23, 1870.

Macroglossa Bombiliformis.—Is this insect double-brooded? The Hon. Emily Lawless met with it abundantly in Connemara last autumn: it was on the wing in May, a few worn specimens were taken in June, and freshly-emerged specimens appeared in July: surely they were not all of one brood.—*Edwin Birchall.*

[I am unable to answer the question: perhaps Mr. Greene, or some other gentleman acquainted with the Entomology of Ireland, will give us his experience. In the case of Macroglossa Stellatarum hybernated specimens always appear on the first warm days in the year, and a continued succession of "appearances" occur up to Christmas: it is much the same with the larva of this species: when the food-plant is growing the larva may always be found.—*E. Newman.*]

Aleucis pictaria at Brockenhurst.—I have just returned from Brockenhurst, Hampshire, where I have been spending a few days with my friend Mr. Alfred Owen, seeking Lepidoptera. Some of the readers of the 'Entomologist' may be interested in hearing that we have captured a number of Aleucis pictaria: we do not think this locality has before been recorded for this species.—*Samuel James Capper; Huyton Park, near Liverpool, April* 25, 1870.

American Moth-trap. — In answer to your query about the "new and successful American moth-trap," I have found it a complete failure. I bought one last year of Mr. Cooke for thirty-two shillings, and should be very glad to sell it for half that amount. I have used it on most favourable nights, and have tried it many times without the slightest result, so I can scarcely recommend it to your correspondent "S. J. C." —*Clermont Livingston;* 31, *Great St. Helen's, Bishopsgate, April* 6, 1870.

American Moth-trap.—I have tried the American moth-trap without the slightest success; but I do not consider it certain that the fault is in the trap, and mean to give it another chance.—*Edwin Birchall.*

American Moth-trap.—In answer to your correspondent who was anxious to glean any facts concerning the American moth-trap, I am able to say from experience that a more useless article has never been manufactured. I have tried it scores of times, in every conceivable position, but whether strapped on to the top of a step-ladder, thereby looking like a miniature lighthouse of Pharos, or placed in the opening of a wood, or out of the window of a house, I have never been able to secure more than two specimens of Arctia Menthrasti, a few Lomaspilis marginata, and several Crambites, especially C. culmellus. The apparatus itself is so cumbersome that it requires two able-bodied workmen at least to carry it any distance, and the amount of oil it consumes is positively fabulous, and, I need hardly say, quite incommensurate with the value of the insects it obtains, even at the dearest dealers. The whole apparatus, again, is so very complicated that the probabilities are strongly in favour of an insect, especially a

Noctua, damaging itself if entrapped. I may mention that while these lumbering paraphernalia were looming in an adjacent coppice, I often succeeded in attracting many moths at a window of the house by the aid of an ordinary candle, thus proving that it was a fair night for collecting by that means.—*M. Bourne; Settlewood, April* 23, 1870.

Dermestes murinus destructive to Hides.—The beetle and its larva, which I send you, were taken from some bales of tanned sheep-skins, just arrived per "Buckton Castle" from Melbourne. Upon opening one of the bales it was found that some of the bundles of skins of which the bale was composed contained numerous holes, about a quarter of an inch in diameter, made by the larva, and as the bundles are so made up that each skin is folded several times, one track of perforations has gone as frequently through the same skin, rendering some quite useless. A like case occurred about four or five years ago in leather from Australia, which was found upon arrival in a similar condition. This leather was, however, much thicker, consisting of tanned ox-hides, of the kind used for soles of boots, and was about a quarter of an inch in thickness. In this case the larvæ were afterwards found in great numbers crawling about a wall, but it was supposed the cold weather killed them. I have never known a case of English leather being attacked in this way, though I am continually seeing large quantities.—*Alpheus Smith; 42, Choumert Road, Peckham.*

[The beetle is Dermestes murinus: its ravages in this instance are fearful.—*Edward Newman.*]

Myrmica domestica.—I am seeking a little advice from you with regard to Myrmica domestica. I have taken a shop in which are a great many of them. I want to know if they are destructive to bread and confectionery, and if there is any way of getting rid of them. You will oblige me very much by sending a reply as early as you can, as the shop is now empty, and there is a good chance for an operation: please make your own charge, and I shall be glad to remit it. —*John Gillam;* 39, *Carver Street, Manchester, April* 5, 1870.

[I make no charge: mine is "advice gratis." I have known many houses in London in which this little ant is a great nuisance, but not so much on account of the goods consumed, which is really very small, as on account of the disagreeable necessity of having the ants mixed up with our food, for wherever they exist they will get into the food, more particularly if it contain sugar. The various plans of laying corrosive sublimate and other poisons in their way is useless, simply from the fact that they will not eat. The following plan has been found more successful:—Boil string in a strong mixture of moist sugar and beer; lay it in the tracks of the ants, and take all other kinds of food away: the sugared string will be covered with ants in a few hours, and may then be dipped for a few moments in boiling water, when the dead ants will at once float on the surface.—*Edward Newman.*]

Dormice at Sugar.—I can corroborate Mr. Argent's statement respecting the occurrence of dormice at sugar, having myself observed a large specimen at one of the trees while sugaring in the New Forest, last autumn: he was too lively to allow of my capturing him.—*H. Ramsay Cox.*

[I should certainly like to see a dormouse actually caught under the circumstances described.—*E. Newman.*]

Dormice at Sugar.—In reply to the Editor's inquiry at the foot of my communication in the April number of the 'Entomologist' (p. 58), I have no hesitation in saying that the little animals which were attracted to my sugar were dormice (*Mus avellanarius*). I released the one I captured almost as soon as caught, but I had ample time for observing the characters which distinguish the dormouse from the long-tailed field mouse, and notably the bushy squirrel-like tail, the tail of the field mouse being long, thin and tapering.—*W. J. Argent; Fern Cottage, Wanstead.*

Mice at Sugar.—With regard to your notices of mice at sugar, it is a common occurrence here, sometimes two on a tree. I have never caught them to see the species, but I do not think they are all field mice, as some were so drunk with the sugar and spirits that they did not attempt to get away, and allowed me to hook them off with the net, and I think I should have noticed if they had been field mice.—*James Gerrard; Lyndhurst, April* 6, 1870.

Acronycta auricoma in the New Forest.—Last night I beat from the sallow bloom two specimens of A. auricoma, one in good order and the other damaged. I do not think it can be anything else; the wings are as long as, but narrower than, those of the common "dagger."—*J. Gerrard.*

Abstract of the Proceedings of the Entomological Society, March 7 and 21, 1870.

English Locusts.—Prof. Westwood exhibited a number of locusts, which formerly belonged to the collections of some of the principal entomologists in the early part of the century, and which still bore the labels of those entomologists "migratoria, Linn." These insects, however, were not the migratoria of Fischer, but were the cinerascens of Fabricius and Fischer, of which Christii of Curtis was only a synonym. The principal distinguishing character was the form of the pronotum, which in one was narrowed before the middle, and almost flat on the top, with the dorsal carina more raised and prominent. Prof. Westwood remarked that tradition and old specimens were, on a point of this kind, of more importance than figures in antique works, and he thought that Fischer had made a mistake, and applied the name migratoria to the wrong insect. On the evidence afforded by these old specimens, he suggested that the true migratoria of Linné was not the locust with a flat or but slightly carinate pronotum, constricted in front, but the locust with an arched pronotum, with the crest or median ridge higher and more produced in front. Mr. F. Smith said that, in consequence of a doubt expressed by Prof. Westwood at a previous Meeting, he had written to Prof. Stal, of Stockholm, who informed him that the insect placed in the Stockholm Museum as the migratoria of Linné is the form described under that name by Fischer. Dr. Stal further said that he had never had any doubt about the species, as Fischer's migratoria is the only species of locust which to his knowledge had ever been found in Sweden. Mr. Smith remarked that Linné described migratoria in the Fauna Suecica; Fischer was acquainted with both migratoria and cinerascens, and figured their distinguishing characters, migratoria having a flat prothorax, cinerascens an arched one; and now to apply the name migratoria to the form with the arched prothorax, on the strength of the specimens so labelled, would only be productive of confusion.

Sunius neglectus.—The Rev. H. S. Gorham sent for exhibition British specimens of Sunius neglectus, *Maerkel*, accompanied by the following note:—"Sunius neglectus is not yet in the British list, and is very closely allied to S. angustatus, *Erichson;* probably they are generally mixed in collections. I have had them separated for several years, and when on a visit recently to Mr. Crotch, with his assistance was able to determine the species. From angustatus it differs in having the head, thorax and elytra proportionally shorter and more convex, less closely punctured, and therefore more shining. Angustatus has a more linear aspect, and the whole insect is more opaque. In angustatus, again, the elytra have a tendency to become pale, particularly at the shoulders, and the apex is more broadly testaceous, though this colour does not usually extend so far up the suture as in neglectus. I send two specimens of angustatus for comparison with what I regard as neglectus; one of them is a very beautiful bimaculate variety."

Dianthœcia conspersa or Barrettii.—Mr. H. Vaughan exhibited some specimens of Dianthœcia conspersa, two of which were so coloured as to bear a singular resemblance to D. Barrettii: they were found on the coast of Devonshire in 1861. Although the varieties of D. conspersa were mixed with true conspersa and true Barrettii, the Lepidopterists present had no difficulty in distinguishing between the Barrettii and their simulators.

Epichnopteryx betulina. — Mr. Bond exhibited Epichnopteryx betulina, *Zell.* (= Psyche anicanella, *Bruand*), found by Mr. Mitford at Bishop's Wood, Hampstead, in 1869: the female was distinguished by a snow-white anal tuft; the larva-cases resembled small cases of Psyche fusca, but the habit of the insect was quite different, E. betulina being always found on the upper branches of the birch. (See 'Insect Hunter's Year-Book,' 1869, p. 10.)

Cosmopteryx Lienigiella.—Mr. Stainton exhibited Cosmopteryx Lienigiella, bred from a larva found feeding in the reed (*Arundo phragmites*), in Wicken Fen, Cambridgeshire. The English specimen was both larger and fairer in tint than the Russian specimens shown at the previous Meeting.

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Silk-culture in Japan. By A. B. FARN, Esq.

I HAVE just been reading an official Report (No. 1) by Mr. Adams, Secretary to H.M.'s Legation in Japan, on the "Central Silk Districts of Japan." This Report, although official, is both interesting and, excepting the errors which I purpose pointing out, instructive. I would therefore propose to give a brief outline of the mode of rearing the larvæ of the silk-moth—the Bombyx Mori I presume, although nowhere in this Report is the scientific name given—as described in this Report.

It appears that "the silk districts of Japan are confined to the principal island, and may be divided into three groups —the northern, designated under the general name of Oshin; the south-western, including those of Echizen, Sodai, Mashitasea; and the "Central.'" The mountainous districts at a distance from the sea produce most eggs. The principal district from which the ova of the silkworm are derived is Shinshin, and it appears that in this district the culture of the silkworm is carried on principally, if not solely, with the object of obtaining eggs, so as to supply cultivators in other parts who devote their time to the production of silk alone; for it appears that there are two distinct trades, the one of egg-selling and the other of silk-selling. The mulberry, the food-plant, seems universally cultivated in the central district, except upon certain high levels: this exception is made apparently from the frequent variations in temperature, which render the cultivation of the leaf and the rearing of the larvæ uncertain. The mulberry is, as a rule, kept in a very dwarf state, not being permitted to attain a greater height than some ten to eighteen inches, though sometimes it is allowed to grow to six feet in height. The trees are generally propagated by layers, sometimes by cuttings, and unfrequently by seed. The latter course is but rarely adopted, as it is found that trees raised from seed produce a large quantity of fruit and but comparatively few leaves. The leaves of course are of more value than the fruit.

The time for the hatching of the ova of the silk-moth varies from "20th April to 5th May," according to the altitude and season. The larvæ when first hatched are fed on the chopped buds of a species of mulberry which puts forth its leaves the earliest of any of the sorts cultivated: this is called the yotsume mulberry. The larvæ when first hatched are kept, by some of the cultivators, on a sparing allowance of food, and the later-hatched larvæ have abundance of food, so as to render the development of the worms as equal as possible. On the other hand, some rearers prefer the hatchings to extend over a longer period, so that all the larvæ may not reach the final stages at once, and thereby cause too great a pressure of work at the same moment. The larvæ, when first hatched, are kept on mats covered with a layer of rice-husks, but as they increase in size they are moved to wooden boards or tables standing upon legs about six inches in height: the tables are placed one upon another in tiers. In these the larvæ are sometimes allowed to remain until ready to spin, but more frequently—and this is the course pursued by the more careful breeders—they are removed, after the second or third change of skin, to bamboo-trays of trellis-work: these trays are placed on shelves fixed along the walls of the rooms, one above another. The juvenile larvæ are fed upon finely-chopped leaves, and as they grow the leaves are not so finely divided: when the larvæ have cast their skins for the third time, the leaves are given entire; and when nearly full-grown the food is given as it grows on the branches. On the subject of food a curious custom obtains amongst the Japanese; it is this: when the larvæ seem sluggish and not inclined to eat, "saké," a liquor fermented from rice, is mingled with water, and the food sprinkled with the mixture. The Japanese are fully aware that moist food is injurious to the larvæ, and yet at the very time when the larvæ do not seem flourishing their food is damped with what I should think would be worse than pure water; and I should feel disposed to doubt the utility of this plan, the object of which is to stimulate the appetite of the larvæ. When the larvæ are about to spin, split bamboos or flexible rods are placed so as to form a slight arch over the trays, dry twigs are loosely spread over the arches and the larvæ are placed on them to spin their cocoons. In the course of ten days the twigs are firmly connected by the silk, and they are then hung from the ceiling until the cocoons are removed. This is a brief account of the rearing of the larvæ, as gathered from Mr. Adams's Report; and anyone who may desire to learn more —for there is a careful account of the mode of winding the silk, from which much may be learnt—I would refer to the Report.

And now I would turn to the errors in this Report on the most important subject of a parasite (called uji) which infests B. Mori. The importance of the subject may be imagined when it is stated that in some districts the number of pupæ found to be killed by this parasite is eighty-four in a hundred. The name uji signifies maggot, and the larva of this parasite is described as "annulated and without feet." The spring brood of silk larvæ are alone affected, the summer brood escaping. The uji when full-grown eats its way from the silk cocoon (which is spoiled except for floss silk), and "changes from pale yellow to reddish brown, gradually becoming darker and darker, and it shrinks up to a third of its size. After three or four days it becomes quite hard and nearly black." From the above description of the parasitic larva, and the changes which it undergoes after emerging from the silk cocoon (which is whilst turning to pupa), I think this must be a dipterous insect. When it has thus shrunk and turned nearly black, it is supposed to be dead. The dry uplands of the interior are less infested by the uji than the low damp localities, or the districts bordering on the sea. To quote from the Report:—"One theory, which appears to be the true one, and has been held by several foreigners, is, that during the spring a species of fly deposits its eggs on the mulberry-leaf, and that these eggs, being introduced with the leaf into the silkworm's intestines, turn into uji after the worms have arrived at the chrysalis state." That this theory, both as to the introduction of the egg and the feeding of the parasitic larva, is not the correct one, may, I think, easily be proved. If the egg were introduced into the larva in this way, and only hatched in the silk pupa, the

Mori larvæ would, I fancy, be but little, if at all, affected by the dormant parasitic egg, and the silk spun by it not deteriorated. But I find in another paragraph of the Report that "the uji are *sometimes* (the *italics* are mine) found in cocoons of such good quality that they could only have been produced by the healthiest worms." From this I infer that the cocoons in which there is this parasite are generally inferior in quality; yet this inferiority could scarcely be caused by an egg of a parasite being in the silk larva's intestines. I should think that in all probability the egg of the parasite is laid in the skin of the silk larva, and that this hatches, and the parasite feeds in a larval form on the silkworm. This would account for some infected silkworms spinning better cocoons than others; for it will be readily conceived that a silkworm which had been exempt from the uji attack until nearly full-grown, would produce a finer cocoon than one whose vitals had been preyed on from its earliest stage of larvahood. The fact that the maggot should be considered the final stage of the parasite shows an ignorance of the rudiments of Entomology and a want of reasoning; for if a fly lays an egg and the egg hatches, and the larva issuing from it after a period dies, how would the fly propagate its species?

The ravages committed by this uji make it important that some remedy should be devised, and to attain this end a practical entomologist should study the life-history both of the silk larva and its parasite; and when I find that in some instances eighty-four per cent of the pupæ are destroyed by the uji, it would, I think, remunerate the silkworm rearers to secure the services of an entomologist for the purposes above stated. I feel pretty sure that the following means, if adopted, would tend to diminish, if not exterminate, the uji:—

1. All silkworms should be protected during the whole of their lives by gauze: this might be easily managed by covering the trays when against the walls of the rooms.

2. By impressing upon the Japanese that the uji, as it emerges from the silk cocoons, is not in its final stage, but is about to turn to pupa; and that means should be taken to insure its death, either by boiling water or crushing.

3. The silk larvæ should be carefully inspected, and any

which appear to be spotted should at once be removed from the others, as doubtless a dark spot would betray the presence either of the uji egg or larva. If the silkworms thus affected were kept together apart from the healthy ones, there would be no difficulty in knowing whether a cocoon contained a diseased pupa or not; and this would save many good cocoons which are now opened to see what percentage of uji exists in any given quantity.

The uji, too, should be watched through all its stages until the fly emerges, and thus the Japanese would identify their enemy when in its perfect condition, and be able to destroy them when caught.

There are two points which require explanation. First, it appears that if two moths are *in copulâ* more than eight hours (from 6 A.M. to 2 P.M.) they are forcibly separated. This strikes me as unwise, as a risk is run not only of injuring the female, but also that all the eggs she may lay will not be fertilized. Second, that "in the dead of winter the card (of eggs) are steeped for one night in cold water, and on the following morning they are taken out and dried. This process is called sarashi, or the bleaching process. In this bleaching process the eggs of bad quality perish and do not become worms, while the good ones resist it and live. The object of it is to separate the worms that should die from the worms that should live." Admitted the object, might it not be attained in a more profitable manner by waiting for the eggs to hatch, and then separating the strong from the weak larvæ? for if the cold water kills those that are weak, it would, I think, tend to weaken those which survive; at any rate it would do them no good.

An entomologist would doubtless be able to suggest improvements in this part of the breeding also.

A. B. FARN.

The Army Worm. [*]

PREVIOUS to the year 1861 but very little knowledge had been acquired respecting the habits of the army worm, and nothing whatever of a scientific nature had been published.

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[*] From the 'American State Entomologist,' p. 47.

A very few observing farmers ventured to predict its appearance during very wet summers succeeding very dry ones. They did not know why this was the case, but it was a fact they had learned from experience. It was also known that the worm attacked only the grasses and cereals, that it was gregarious in its habits, and that it disappeared suddenly, in a manner as seemingly mysterious as that in which its advent was supposed to have been made. These few facts were about the only ones of real value, respecting the habits of this insect, that could be gleaned from the statements of those who had suffered most from its ravages; while the subject seems to have been, up to that time, entirely ignored by entomological writers. In 1861, however, its very general appearance, and the vast amount of damage it did, attracted the attention not only of farmers, but of several well-known entomologists, among whom may be mentioned our late friends, Walsh of Illinois and Kirkpatrick of Ohio; and Cyrus Thomas of Illinois, Dr. Fitch of New York, and J. H. Klippart of Ohio. As might have been expected, diverse conclusions were arrived at, and various theories entertained by these writers, and some very spirited correspondence between Messrs. Walsh and Thomas and Walsh and Klippart may be found in old files of both the 'Ohio Farmer' and the 'Prairie Farmer.'

The principal point of dispute was, whether the army worm wintered in the egg or chrysalis state, and, as a consequence, whether it was single- or double-brooded. It is needless to follow these gentlemen in their discussions, which were frequently caustic and pungent, but sometimes partook more of the character of personal wrangling than of a calm and conscientious search after truth. Two of the five parties mentioned above are now in their graves, and while one of those yet living—Mr. Cyrus Thomas—believed in the two-brooded character of the insect, the other two evade the question entirely. Mr. Walsh took the ground that it was single-brooded, and the experience of the past year has convinced me that he was correct. The army worm, like all other insects, hatches from an egg, and this egg is evidently deposited by the parent moth at the base of perennial grass-stalks. In Southern Missouri it hatches out about the middle of April, in the central part of the State about the 1st, and in the northern part about the middle of May; in Massachusetts about the middle of June, and in Maine about the middle of July. In every locality the worm goes under-ground about a month afterwards to assume the pupa or chrysalis state, and stays under-ground between two and three weeks. Hence in the southern part of this State the moth appears about the fore part of June, and a month later in each successive locality as we go North, till in Maine the period becomes the fore part of September. Of course these dates will vary somewhat with the character of the seasons, and sometimes from local causes; but, broadly speaking, they will hold good. The moths soon pair, and, some time during the summer and fall months, deposit their eggs in the positions already indicated. Many eggs are thus deposited in tame meadows, but there is little doubt in my mind that the great bulk of these eggs are deposited in low damp situations, and, if the fall should prove wet instead of dry, many of them would perhaps get drowned out, and we should thus have another potent influence at work to decrease the numbers of the worm the succeeding year. I make this suggestion with all due consideration, for I have long since concluded that the instincts of insects, as of some of the higher animals, are not always sufficient to guard against all contingencies. It has been demonstrated, beyond the possibility of a doubt, that the plum Curculio deposits its eggs in fruit that overhangs water, and in other positions where the grub must inevitably perish; and certain flesh-flies are well known to deposit their eggs, by mistake, on flowers that have a putrescent smell. Darwin has remarked that a small South-American bird (Furnarius cunicularius), which builds its nest at the bottom of a narrow cylindrical hole which extends horizontally several feet under ground, is so incapable of acquiring any notion of thickness, that, although he saw specimens constantly flitting over a low clay wall, they continued vainly to bore through it, thinking it an excellent bank for their nests. Many such instances of misdirected instinct might be cited, and they all lead me to believe that the female army-worm moth would be just as likely to lay her eggs in situations where they would drown out, as in situations more favourable.

The above may be considered as the normal habit of the army worm; but exceptional individuals occur, perhaps one in a hundred, but demonstrably not as many as one in twenty, which lie in the chrysalis state all through the winter, and do not come out in the moth state till the following spring. The proportion of those which lie over till spring is doubtless greater in the more northern states than it is with us. The great fault which Mr. Walsh made in his excellent paper on this insect, published in the 'Illinois State Agricultural Transactions' for 1861, was that he drew his lines too rapidly, and allowed of no exceptions to the rule which he laid down, of its single-broodedness. He also fell into an error in roughly estimating the average life of the moth from three to five weeks. I have often caught the moths, both in the fall and spring months, even in years when the worms themselves were unnoticed by farmers; and Dr. Levi Bartlett, formerly of Pesotum, Illinois, informed me while he was practising in Chicago, that he had himself ascertained that they would sometimes live at least three months, and that he had often found them as late as October. We must also bear in mind that they do not all mature and issue from the ground together, even in the same locality, but that an interval of from six to eight weeks may intervene between the issuing of the first and last moths. With these facts before us it is easy to comprehend how some of the moths live long enough to deposit their eggs on newly-sown fall grain, though grass meadows are more favourite resorts. It also becomes clear that the moths may sometimes lay their eggs before harvest, upon growing grain, sufficiently high from the ground for the egg to be carried off with the straw; and this accounts for several well-authenticated instances of the army worm starting from stack-yards. The army-worm larva varies but little in appearance from the time it hatches to the time when it is full-grown. Some specimens are a shade darker than others, but on many thousands examined I have found the markings very uniform. The general colour is dingy black, and it is striped longitudinally as follows:—On the back a broad dusky stripe, then a narrow black line, then a narrow white line, then a yellowish stripe, then a narrow sub-obsolete white line; belly obscure green. The chrysalis is of a shiny mahogany-brown colour, with two stiff converging thorns at the extremity, having two fine curled hooks each side of them. The general colour of the moth is light reddish brown or fawn-colour, and it is principally characterized by, and receives its name from, a white spot near the centre of its fore wings, there being also a dusky oblique line running inwardly from their tips.

Our army-worm moth was first described by the English entomologist Haworth, in the year 1810, in his 'Lepidoptera Britannica,' page 174, as Noctua unipunctata. Subsequently the French entomologist Guenée ('Noctuelites,' i. p. 77), overlooking the former's description, and regarding it as a new species, named it Leucania extranea. Of course Haworth's name takes the precedence. It is considered a common species even in European collections, and Guenée mentions it as occurring in Brazil. A variety without the white spot occurs in Java and India, and still another, lacking the white spot, and having a dark border on the hind wings, occurs in Australia; while an occasional specimen has been captured in England. A figure is given in Stainton's 'Entomologist's Annual' for 1860 of one captured there in 1859, but if the figure be a correct one the specimen is much lighter than ours, and the characteristic white spot is not nearly so conspicuous.

[This remarkably destructive insect, which is a perfect plague in many parts of the United States, has occurred twice to my knowledge in England: it is described by myself, and figured by Mr. Willis with surpassing accuracy, at p. 261 of my 'British Moths,' under Guenée's name of Leucania extranea: I was not at that time aware that it was the long-lost Noctua unipuncta of Haworth, and still less that it was the much-dreaded army worm of the United States. My note on its habitat is as follows:—This moth appears on the wing in September; Mr. Bond captured one specimen at sugar at Freshwater, in the Isle of Wight, on the 6th of August, 1859. It has always been considered an American insect."—*Newman*, l. c. There seems to me no reason for hesitating about the restitution of Haworth's prior name.—*E. Newman.*]

Entomological Notes, Captures, &c.

D. bicuspis, &c., at Leominster. — From various parts of the kingdom the complaint has reached me of the unusual scarcity of insects this spring: such has not altogether been the case here, although several species have not occurred which are some seasons met with. The sallow-bloom was very productive. Once again I had the pleasure of taking each species of the genus Tæniocampa on one night. As usual, Opima was very rare: only one example was taken, Leucographa and Gracilis were very still when boxed, and reached home in fine condition; Miniosa and Populeti, on the contrary, soon damaged themselves. Hybernating moths were represented by three X. petrificata, three Semibrunnea, one H. croceago, &c.: the last-named species had never before been taken here. Early in April the weather became very cold, and most insects disappeared, but nevertheless several species of Eupitheciæ occurred—Consignata, Irriguata (two, both unfortunately males), Indigata (in numbers), Vulgata, Dodoneata, Abbreviata, Pumilata and Coronata. On May 7th it became much warmer, and I spent a few hours in a neighbouring wood, and found E. pendularia, P. petraria, N. pulveraria, L. lobulata, Y. impluviata, P. tersata, C. silaceata, P. lacertula, P. falcula, and other commoner species already on the wing; but the great take of the day was a splendid female D. bicuspis, just emerged, sitting on a birch trunk close to its pupa-case. Is it generally known that the larva of B. Callunæ, in confinement, will feed well on ivy? I proved this to be the case last winter.—*T. Hutchinson; Grantsfield, Leominster, May* 13, 1870.

Deilephila Livornica in Staffordshire. — As far as I am aware no entomologist has recorded the occurrence of this very rare insect in Staffordshire, and therefore I desire to state that I have obtained two specimens near Wolverhampton. The first emerged from the chrysalis on the 18th of July, 1867, and, thinking the description may be of some use to your readers, I will give you a short account. The previous year I had reared Smerinthus Populi from small larvæ feeding on the white poplar (P. alba), and during a long absence from home the men, who found similar larvæ feeding on the poplar, put them away in the usual manner:

when I returned I found all had buried themselves in the earth provided for that purpose. I did not disturb the pupæ, and one morning the next year I found in my breeding-cage a perfect imago of Deilephila Livornica. I have troubled you with this account, as it must show how similar the larva is to that of Smerinthus Populi, and that in this case it fed on the white poplar, and not on the lady's bedstraw as generally supposed. The other specimen flew to a light in a window on the 3rd of August, 1868. You may be surprised that I did not announce these captures before, but at the time I made them I did not know of your valued 'Entomologist.'—*T. Edward Morris; Elmsdale, Wolverhampton.*

In the matter of Dianthœcia Barrettii. — Having seen one of the specimens of D. conspersa bred by Mr. Moore, I have no doubt whatever about it being an aberration of that species. How any person having "form," and not colour-blind, can compare narrow-winged, silky, smooth, ochreous-brown specimens to broad-winged, rough, greenish and colcothar-coloured blotched Barrettii, I am at a loss to conceive; and as Mr. Moore's description of the larvæ he bred them from is a good practical description of the larvæ of D. conspersa as bred by myself, the matter may well end here, they being undoubtedly D. conspersa, *var.*—*C. S. Gregson; May* 4, 1870.

Have any Lepidoptera the power of rendering themselves invisible?— Have any of the Lepidoptera the power of rendering themselves invisible when pursued? When in France and Switzerland last autumn, I had the good fortune to meet with many of the Queen of Spain Fritillary (Lathonia), and although the ground above which they were flying was quite clear from underwood, yet just as I was about to strike with my net they would often appear to vanish in the most extraordinary and unaccountable manner. I at first thought they must have dropped suddenly to the ground, like many of the moths; but though I most narrowly searched the spot, yet I could never find them. Can the large quantity of silver under the wings have the effect of dazzling the eyes in the bright sunshine?—*John Gatcombe; Stonehouse, April* 30, 1870.

Eupithecia satyrata.—Yesterday (May 8th) two specimens, male and female, emerged at 8 A.M. At 9 A.M. they paired, and in the afternoon the female began to lay eggs! Such prompt proceedings as these are quite unexampled in my experience of this genus. I have generally found great difficulty in getting the Eupitheciæ to pair. — (*Rev.*) *Joseph Greene.*

Euchelia Jacobeæ. — I bred the other day a female of this insect with only three wings. The missing "limb" was the right under wing: there is not the slightest trace of it. The other three wings are fully expanded. This is not an uncommon occurrence among the Geometræ, but I have never seen myself, nor do I remember to have seen recorded, an example of it in the Bombyces.—*Id.*

Lycæna Argiolus near Gateshead. — During the week I have captured L. Argiolus pretty freely, flying and at rest on the holly, at Gibside, the seat of Sir Wm. Hutt, M.P., and six miles west of Newcastle.—*T. H. Hedworth.*

Arrival of Beetles on the North-east Coast.—Towards the end of last month the Friths of Moray and Cromarty were covered with a species of small pseudo-tetramerous beetle (Galleruca). The insects appeared first on Monday, the 18th, floating by millions upon a calm sea, and were afterwards thrown up upon the shore in heaps by every tide. This sudden arrival of such a multitude of insects must, it would seem, be due to their migration, especially as it would otherwise be difficult to account for their presence in the sea. If then such a migration took place, it would be interesting to ascertain, if possible, the point from which it started, since we could then form some idea of the powers of sustained flight enjoyed by these insects. Whoever will look at a map of the neighbourhood will see that the Cromarty Frith is merely an offshoot from the Moray Frith, and that the latter has only one opening into the outer sea. The beetles must therefore either have drifted in through this opening from the North Sea, or have come to grief while flying over the Moray Frith. Now this Frith, at its broadest part, is only about nine miles across, and, if this were all the distance the beetles had to fly, it would seem strange that none, out of all the millions that failed, should have succeeded in reaching the opposite shore, especially when we remember how hardy these beetles are upon the wing. On the other hand it would be equally strange if they drifted in from the North Sea, because in this case the nearest point from which the migration could have started (supposing it to have come in a straight line) would have been the coast of Norway. However, the question whether or not the beetles floated in from the North Sea might be easily settled if any one who, about that time, was upon the coasts of Aberdeenshire, Banff or Elgin, or even the east coast of Caithness or Sutherland, could let us know whether they appeared there or not. I may add that upon their arrival a small proportion of the insects were still alive, but dissection showed them all to be much emaciated. Previous to their arrival there had been little or no wind.—*G. Romanes; Caius College, Cambridge.*

Collecting Lepidoptera Abroad.—A short time since I saw a number of Lepidoptera which had been sent from the Cape, and the manner in which they had been dried and packed seems to meet the case suggested in the note of your correspondent S. N. C. jun., at p. 79 of this month's 'Entomologist.' The insects had been dried with the wings flat over the back, in the position usually assumed by butterflies when at rest, so that little trouble was needed in setting. They were then placed between two thin layers of cotton wool, and folded up separately in thin paper. The whole were then packed in a wooden box, an occasional layer of wool being introduced to keep all steady. When I saw them they were in the most beautiful condition, and I was astonished at the large number contained in a box of about a cubic foot in content. Plenty of camphor had been introduced, and apparently with effect, for I saw no mites. There may be nothing new in this, and the plan may have objections which my slight acquaintance with it did not discover; so that I shall not be greatly surprised if this note finds its way to the waste-paper basket.—*T. Wildman; Customs, London, May* 3, 1870.

Collecting Insects Abroad.—In reply to the inquiry upon this subject (Entom. v. 79), butterflies and thin-bodied moths carry perfectly safe in envelopes, one or at most two specimens in each envelope, and put away in a tin box loosely (a cigar or other box will do, but tin is secure against all vermin). Before the box is full it is as well to have some crumpled paper therein, to prevent the envelopes moving about. In this way, and also in old letter-paper folded triangularly, I have received all my West-African butterflies quite safe, and set them at my leisure, after relaxing them in a box of bruised laurel-leaves.—*C. S. Gregson.*

Does the Spider eat its own web?—"Rennie, in his 'Insect Architecture,' asserts that the common garden spider does not eat its own web. A close observation has convinced me that it does. After cutting a web, so that it hung only by a thread, the spider came out, gathered the whole up, soaked it with the glutinous liquid from its mouth, carried it to its den corner, and then, opening its jaws, took the entire ball in. The thought, however, struck me, Was the mass conveyed into the proper stomach of the insect, or into some cavity whence it might be reproduced through the spinnerets? I should feel much obliged if you could answer this question, for I can assert that the web was swallowed." — *Notes and Queries*, 1856. This paragraph implies that the subject lately introduced into the 'Entomologist' had been discussed prior to the publication of Rennie's 'Insect Architecture.' Like my valued correspondent Mr. Pickard-Cambridge, I repudiate all participation in the idea that a spider can swallow web; but then I totally disbelieve in toads in stone, spirit-rapping, vipers swallowing their young, and all other miracles that constitute the stock-in-trade of wonder-loving naturalists; but I cannot conceal from myself the fact that this disbelief does not in any respect amount to evidence against these supposed phenomena.—*E. Newman.*

Abstract of the Proceedings of the Entomological Society, March 21, 1870.

English Locusts.—Mr. Dunning exhibited a locust captured near Thirsk, Yorkshire, in the autumn of 1849: the prothorax was flat and constricted in front, and notwithstanding the contention of Prof. Westwood (Entom. v. 85), he thought this was the true Locusta migratoria of Linné. The appeal to tradition did not tell entirely on one side: Fabricius when he described cinerascens was acquainted with migratoria, and it was clear from his description that cinerascens was the form with the arched prothorax; consequently migratoria, from which Fabricius separated cinerascens, was according to his belief the form with the flat prothorax. But further, from the time of Fabricius to the present, cinerascens had always been regarded as a doubtful species, the majority of authors having treated it as only a variety of migratoria: the entomologists from whose collections the Oxford specimens were derived might have been of this opinion; at all events until it was shown that they recognized the existence of the two as distinct species, the argument derived from their having labelled specimens of cinerascens with the name migratoria was far from conclusive. Finally, Linné's own description of migratoria applied to the form commonly so called, and not to the form with the arched prothorax. The differences between the two had been pointed out by M. Brunner de Wattenwyl (Ann. Soc. Ent. Belg. xi. 32) so clearly as to have induced M. de Selys Longchamps to recognize Pachytylus cinerascens as a species. The recent discussion had been provoked by the appearance in this country of Acridium peregrinum, and had satisfactorily brought out the fact that, if migratoria and cinerascens (= Christii, *Curtis*) were really distinct species, both of them had occurred in Britain. [See Mr. Walker's paper on these locusts in the 'Insect-Hunter's Year-Book for 1869,' p. 16.]

Larvæ of Argynnis Niobe and Adippe.—Mr. Albert Müller mentioned that Meyer-Dür had pointed out certain differences between the larvæ of Argynnis Adippe and Niobe: in his 'Verzeichniss der Schmetterlinge der Schweiz,' published in 1852, that author states that Argynnis Niobe in Switzerland inhabits only the alpine and sub-alpine regions from 3000—5600 feet above the sea, and that its larva has in the full-grown state a white dorsal stripe and flesh-coloured spines, whilst A. Adippe is not found at a greater elevation than 3300 feet, and its larva has no white dorsal stripe, but a pale reddish lateral stripe instead. Mr. Müller argued, that though the food-plants of both were various species of violet, until this evidence was rebutted, or unless two different larvæ produced the same form of imago—unless there were dimorphic larvæ—Adippe and Niobe must be considered distinct species, even though (which he did not admit) the perfect butterflies were undistinguishable. Mr. Butler was not acquainted with the larvæ of Argynnis Adippe and Niobe, and his suggestion that the two forms were one species was made from observation of the perfect insects only; he had found the two flying together, and the sexes pursuing one another: he thought the differences between the butterflies, without amounting to specific distinction, might be accounted for by differences in the external conditions to which they were subject. An instance of this kind had lately come under his notice: in India, Capt. Lang had been in the habit of taking what at the time of capture he thought were two distinct butterflies, one in marshy land, the other in dry situations, the marsh insect being thickly covered with down, the highland insect not; but Capt. Lang was now satisfied that the two were but one species, Callerebia Scanda, which was liable to modification by surrounding circumstances.

Dimorphism of Larva of Acherontia Atropos.—Mr. Stainton mentioned an instance of dimorphism in the larva state: a form of larva of Acherontia Atropos sometimes occurred with the ordinary markings obliterated and with only a few whitish blotches in front, so that there was really nothing but the shape of the anal horn by which the larva could be identified as Atropos: he had known of the occurrence of about twenty of these abnormal larvæ in the last twenty years; and there was no perceptible difference in the imago. [See my description of this beautiful variety (Entom. ii. 281).—*Edward Newman.*]

Varieties of Gnophos obscurata, &c.—Mr. J. Jenner Weir referred to Gnophos obscurata, which was found nearly white on the chalk downs, and in fact varied from nearly white to sooty black according to the geological formation of the locality where it occurred. [See my figures of these varieties (Brit. Moths, p. 68).—*E. Newman.*] Mr. Pascoe mentioned Apion Germari, which when found on Mercurialis perennis was constantly of one form, and when found on Mercurialis tomentosus was constantly of another form; yet no one hitherto had doubted the specific identity of the two forms. Mr. Butler recalled the fact that on the same plant of golden rod (*Solidago virgaurea*), larvæ of Mamestra Persicariæ might often be found of three or four different colours. Mr. Henry Moore had once found larvæ of Eupithecia virgaureata feeding on the petals of a crimson dahlia, and they assumed a crimson hue, in lieu of the ordinary ochreous with sepia-coloured markings.

THE ENTOMOLOGIST.

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"The Cabinet List of the Lepidoptera of Great Britain and Ireland, by Dr. Knaggs." By HENRY DOUBLEDAY, Esq.

I HAVE looked over this Catalogue, and wish to correct a few errors into which Dr. Knaggs has fallen.

I may first remark that the proof-sheets do not appear to have been very carefully revised, as several errors in spelling have been overlooked; for example:—

Zenzera for *Zeuzera.*
Asterocopus for *Asteroscopus.*
Prothesia for *Porthesia.*
Menthrastri for *Menthastri.*
Lubricepeda for *Lubricipeda.*
Sopelosoma for *Scopelosoma.*
Bandiana for *Badiana*, &c., &c.

Cœnonympha Davus, Fab. — Dr. Knaggs has copied Dr. Staudinger's error in giving this as a Linnean species. The Typhon of Haworth was first described by Fabricius, in 1776, under the name of Davus. Haworth's Davus is the Rothliebi of German authors.

Macroglossa fuciformis and *Bombyliformis.*—As no synonyms are given, it is impossible to say how Dr. Knaggs applies these names, but the Fuciformis of English authors is certainly the Fuciformis of Linneus: he says it feeds upon the honeysuckle, and a specimen exists in his cabinet with his label on the pin. Fuciformis, *Linn.*, and Bombyliformis, *Och.*, are the same species; and unless Dr. Knaggs follows the German authors in reversing the names, he should have written Bombyliformis, *Esper.*

Drymonia, Hüb.—No authority is given for this name.

Diloba, Boisd.— This genus is incorrectly given as one of Stephens'.

Xanthia cerago, S. V.— I do not think this is the Fulvago of Linneus: it does not agree with his description; he says it is similar to Citrago, and refers to Clerck's figure, which certainly does not represent Cerago, but resembles Sulphurago, *S. V.*, a species closely allied to Citrago.

Acidalia interjectaria, Boisd.—If Hübner's figure of Dilutaria is meant for this species, it is very bad.

Acidalia promutata, Gn. — Dr. Knaggs has followed the German authors in erroneously calling this species Immutata, although Guenée has clearly pointed out that the Immutata of Linneus is the Cæspitaria of Boisduval, and probably the Sylvestraria of Hübner. The description in the 'Fauna Suecica' and the figure of Clerck leave no room for doubt.

Acidalia straminata, Tr., and *marginepunctata*, Dale and Stephens, are given as distinct species. I hope Dr. Knaggs will publish his reasons for separating them. I have sent specimens of our Marginepunctata to my friend M. Guenée and other continental entomologists, and they have always been named Straminata, *Tr.*

Acidalia mancuniata, Knaggs.— I wrote a few days since to a friend living at Manchester, and his decided opinion is that Mancuniata and Subsericeata are only slight varieties of one species.

I sent some specimens of the ordinary Subsericeata to Professor Zeller a year or two since, and he said they were his Pinguedinata, and that his Asbestaria and Cloraria of Roessler were probably mere varieties of the same species.

Acidalia sylvestraria, *Hüb.*, is certainly the Immutata of Linneus, and his name must be adopted.

Acidalia fumata.—This name was published in Stephens's 'Illustrations' in July, 1831. Freyer's name Commutata was not published till 1833.

Larentia ruficinctata, Gn. = *flavicinctata*, Steph. — Dr. Knaggs calls this pretty moth the Ablutaria of Boisduval, a very different species, which has never been found in Britain: it very much resembles Salicata, but is rather larger. M. Bellier de la Chavignerie sent me a nice series of specimens which he took in Corsica. Ruficinctata is described by Guenée, in his volumes on the Geometræ, from Scotch specimens which I sent to him.

Eupithecia pimpinellata and *E. denotata* of Hübner are given as one species, but they are quite distinct, and the latter is the Campanulata of Herrich-Schæffer.

Eupithecia constrictata, Gn.—This is not the Distinctaria of Herrich-Schæffer, but I believe it is the Euphrasiata of this author, but Guenée's name is the older of the two.

Eupithecia subciliata.—Dr. Knaggs gives this small species as the Laquæaria of Herrich-Schæffer, to which it bears no resemblance. My late kind friend Lederer informed me that in Austria it was considered to be the Inturbata of Hübner, but his figure is very coarse, and, if intended for this species, is very bad.

Ypsipetes ruberata.—Donovan's figure of Literata certainly represents Impluviata.

Coremia ligustrata, S. V.—This is certainly the Quadrifasciaria of Linneus, as is proved by Clerck's figure and the specimen which still exists in the Linnean cabinet.

Phibalapteryx polygrammata, Hüb.—The British species is the Conjunctaria of Lederer, and, after carefully comparing it with specimens of the true Polygrammata, I believe it to be a distinct species.

Ennychia ostrinalis, Hüb., is quite distinct from E. purpuralis: it is double-brooded, and there is only one brood of Purpuralis annually.

Hydrocampa Nymphæata, Linn., is only the male of his Potomogata, as is proved by his description and the specimen in his museum; yet Dr. Knaggs repeats the old error of making it synonymous with the Stagnata of Donovan.

Crambus selasellus, Hüb.—Dr. Knaggs makes this species identical with the Pratellus of Linneus: this is certainly an error, as the description in the 'Fauna Suecica' and the reference to Clerck's figure prove. "Tinea pratella, alis superioribus albidis, linea albissima, postice ramosa, apice striis obliquis:" this description cannot apply to Selasellus, which has the anterior wings buff-coloured, with a straight white line, and there is no trace of any oblique streaks at the apex. Clerck's figure correctly represents our common Pratellus.

Penthina Similana, S. V., is not a British species. I suppose Dr. Knaggs means Similana of Wilkinson. This and other similar errors arose, no doubt, from the objectionable practice of employing the same name more than once in a family.

Penthina ustulana, Haw.—This is the Fuligana of Hübner, and his name must be adopted, as it was published eleven years before Haworth's.

Penthina Grevilleana is a very distinct species, and I am much surprised that Mr. Wilkinson considered it to be a variety of Prælongana, *Gn.*

Lozotænia latiorana, H.-Schæf. — This I suppose should be Latiorana of Wilkinson, as Herrich-Schæffer's insect is a Catoptria synonymous with Æmulana.

Lozotænia piceana, Linn.—The only reputed British specimen of this species was a female in the late Mr. Bentley's collection, but I believe its native origin was doubtful. I suppose Dr. Knaggs has given this name in error for the Xylosteana of Linneus, one of our commonest Tortrices, and which differs very much from Piceana in form, colour and markings.

In the genus Pœdisca one of the commonest species is omitted. Sordidana of Hübner and Stabilana of Stephens are identical. The larva of this species feeds upon alder.

The larva of Solandriana feeds upon birch. It is rather difficult to say what name ought to be adopted for the omitted species; one of the varieties may be the Piceana of Haworth but this name, having been previously employed, is objectionable. Dr. Staudinger adopts Sciurana of H.-Schæffer; his figure represents the variety with an ochreous streak in the centre of the superior wings. Melaleucana of Duponchel is another variety identical with the Semifuscana of Haworth's MSS. and of Stephens's 'Illustrations,' published in 1834. I have adopted this name in my Catalogue, and I think correctly. It is a very common species and extremely variable. The larva feeds upon sallow.

Retinia Buoliana, S. V.—Dr. Knaggs gives my Pinicolana as identical with Buoliana, from which it is very distinct. I will quote a few lines from a letter which I received a day or two since from my friend Mr. Greening: he says, "You do surprise me when you tell me that Dr. Knaggs makes your Pinicolana identical with Buoliana. I think we have not two species in any genus in your list more distinct than these. I cannot see any likeness in the markings, and when alive the two species are very different. Buoliana, on our Mosses, always appears about a fortnight before Pinicolana, and flies in the afternoon and evening in hundreds round the fir trees; and when you rap the trees with a stick they will fly up and down and round the trees for some time before they again settle upon them. Now it is quite different with your Pinicolana: their flight is different from that of the other species; so much so that when you see them on the wing you can tell which species you are looking at; then again they do not appear on the wing until nearly all the others have settled for the evening; and when you strike the trees with a stick they seldom fly, or if they do it is only for about a yard, and then they creep down to the roots of the heath. I believe your Pinicolana is as good a species as any in our list."

Retinia occultana, Doug. — Mr. Douglas's figure and description of this species appeared before Professor Zeller's, and his name ought to be adopted.

Pamplusia subsequana, Haw.—This species is identical with the Asthena pygmæana of Hübner, and is totally distinct from the Monticolana of Duponchel, to which it bears no resemblance.

Grapholita microgrammana. — Guenée named and described this species long before Herrich-Schæffer figured it.

I meant to have added a few remarks upon the species of the genus Eupœcilia, but must leave them till I have examined more specimens.

Henry Doubleday.

Epping, June 20, 1870.

On Locusts. By the Baron De Sélys-Longchamps.

Translated by F. Walker, Esq.

In the 'Annales de la Société Entomologique de Belgique,' vol. vi., De Sélys-Longchamps published a Catalogue of the Dermaptera of Belgium, and vol. xi. of the same periodical includes his additions and corrections to that Catalogue. In vol. vi. he considers Pachytylus cinerascens as a race of P. migratorius, but in vol. xi. p. 32, he believes it to be really distinct, though its characters are not very definite. Brunner de Wattenwyl forwarded to him the following parallel between the two species:—

P. MIGRATORIUS.

1. Male and female of equal size.
2. Prothorax straightened laterally in the middle; dorsal keel comparatively low.
3. The two black longitudinal spots of the prothorax effaced.
4. The black markings of the fore wings forming narrow lines.
5. Inhabits Eastern Europe, the region of the Black Sea, Himalaya region, and Manilla.

P. CINERASCENS.

1. Male much smaller than the female.
2. Prothorax of equal breadth along the whole length; dorsal keel comparatively high.
3. The two black longitudinal spots of the prothorax always very distinct.
4. Fore wings marked with rather large black spots.
5. Inhabits S.W. Europe, the Mediterranean region, Greece, Syria, Algeria, Madeira, Canary Isles, Bengal, Manilla, Australia and New Zealand.

De Sélys adds that in cinerascens the two black spots of the prothorax are only very distinct in the variety which he names *virescens*, and that in the sub-variety *dilutior* from the South of Europe the dark markings of the fore wings are nearly effaced. He remarks that according to Brunner the colour of the hind legs is variable in both species. Nevertheless he has observed that in cinerascens the hind tibiæ are almost always red (or flesh-colour in the var. *fuscescens*), but never bluish, while in migratorius the hind tibiæ are never red, but are most often blue, passing sometimes into pale yellow, or slightly into flesh-colour. The hind part of the prothorax generally forms, in cinerascens, a slightly acute angle; in migratorius, a right or slightly obtuse angle. The two blackish stripes of the prothorax, in cinerascens, are often continued as far as the eyes in the greenish specimens from S. France and from Belgium (var. *obscurior*). Generally, in the Belgian specimens, the head is marked above with two dark parallel streaks, which are often seen in the true migratorius; and, on the contrary, the two lateral black stripes are indistinct on account of the dark ground hue. In 1844 migratorius was abundant in S. Russia, and in 1845, 1846 and 1847 it occurred in N. Germany, in Belgium and in Sweden. According to De Sélys' opinion, migratorius is a species or form peculiar to Tartary or S. Russia, and only appears in W. Europe as an accidental visitor, and may be reproductive there for a year or two under the influence of favourable circumstances. De Sélys has received a specimen from Egypt, and Brunner considers that migratorioides of Reiche and Fairmaire (found in Abyssinia and in Java) is an extreme form of migratorius. The fore wings of migratorioides are of a deeper brown, with the markings effaced; the hind legs appear to De Sélys to be longer and with more slender tibiæ. Cinerascens is not erratic in Belgium; it is reproductive there every year, though very local. It is also a truly indigenous species in S. France, in Spain and in Portugal.

In the variety *obscurior* (the type) the colouring is very deep, varied with brown and with blackish on the head, the thorax and the femora; the hind tibiæ are bright carmine-red; the markings of the fore wings are blackish and approximate. This variety often occurs in Belgium.

The name *virescens* may be given to the specimens where a pale green is dominant on the head and on the femora, and where the two black stripes of the prothorax are strongly marked; the red of the hind tibiæ is a little paler, and the fore wings are less dark. This variety also occurs in Belgium, but is there a little darker than in S. Europe, where it is represented by females of very large size, and where there is a sub-variety *dilutior*, in which the markings of the fore wings are almost obliterated.

The name *fuscescens* may be given to another variety, which has been found at Biarritz and in Portugal. It resembles the S. European virescens by its great size and by the markings of the fore wings, but the hind tibiæ are pale rose-colour, or of a yellowish hue, which is hardly tinged with flesh-colour, and the body is pale brown instead of greenish. This variety has not been observed in Belgium.

In conclusion, De Sélys remarks that the genus Acridium is represented in Europe by A. tataricum, and that the locusts which devastated Algeria in 1864, 1865 and in 1866, were A. peregrinum, and they proceeded from the Great

Sahara, and their flight sometimes extends to Spain and to the Balearic Isles. Brunner mentions that in 1866 peregrinum appeared in the Isle of Corfu, and that the N. African variety is always of a lemon-yellow colour, and that the specimens from W. Africa and from Hindostan are tinged with blood-red.

F. WALKER.

Abstract of the Proceedings of the Entomological Society, April 4, and May 2, 1870.

Weevils of Wheat.—Mr. J. Jenner Weir (on behalf of Mr. James Vogan) exhibited specimens of grain attacked by weevils: from 74 tons of Spanish wheat 10 cwt. of weevils had been screened, and these must have consumed several times their own weight of grain before arriving at maturity: in August, 1868, some American maize was stored, weighing 145 tons; in August, 1869, this was found to be infested with weevils, and 6 cwt. of the beetles were screened out; in December 29 cwt. more were screened out, making a ton and three-quarters in all. Specimens of the weevils were exhibited, and in both cases the depredator proved to be the rice-weevil, Calandra Oryzæ, and not C. granaria: along with the weevils were a few specimens of Stene ferruginea and of a Læmophlœus, the predatory larva of the latter being the natural enemy of the Calandra. Prof. Westwood observed that no description of the larva of Calandra granaria had been published: it was comparatively a fatter and shorter larva than Balaninus, distinguished from the usual form of Curculionidous larvæ by having two recurved points or hooks at the extremity of the body, and changed to the pupa within the grain.

Argynnis Adippe and A. Niobe.—Mr. J. J. Weir, with reference to Mr. Butler's suggestion of the identity of Argynnis Adippe and Niobe, exhibited four specimens which had been sent to him from St. Petersburg, one as the typical form of Adippe and another as its variety Cleodoxa, and one as the typical form of Niobe and another as its variety Eris: the typical form of each had silvery spots on the under side, and these were absent both from Cleodoxa and Eris; but notwithstanding this parallelism of variation, there was no greater approximation to one another in the two varieties than there was in the two typical forms. Mr. Albert Müller remarked, however, that what was regarded in Switzerland as the typical form of A. Niobe did not possess the silvery spots on the under side.

Odour of Gall-flies.—Mr. Albert Müller read the following extract from a letter received from Mr. H. F. Bassett, of Waterbury, U.S.A., on the odour of Cynipidæ :—"You speak of the peculiar odour of certain species of European gall-flies. A similar odour is strongly apparent in three subapterous species of Cynips that I have reared from the galls, namely, C. pezomachoides, *Osten-Sacken*, C. forticornis, *Walsh*, and C. hirta, *Bassett;* and I find that Dr. Fitch, in the description of his Philonix fulvicollis, mentions that it 'exhales a perceptible odour,' resembling that of ants or bees. I do not remember to have noticed this odour in any of the winged species I have reared."

New British Beeetles. — Mr. G. R. Crotch sent for exhibition British specimens of four species of Dasytidæ; one being Dolichosoma protensa, taken some years ago in the Isle of Wight, and agreeing entirely with Spanish specimens taken at Carthagena; the other three belonging to the subgenus Mesodasytes, and having a somewhat complicated synonymy. The following note was read respecting them: —"The old genus Dasytes has been subdivided by Mulsant and Rey into five subgenera; all our species, except the rare D. niger, fall into the third of these, called Mesodasytes, of which three species are described from France, all of which are found also in England. Mulsant's nomenclature is by no means in accordance with Kiesenwetter's, and he seems not to have noticed Kiesenwetter's paper on the Spanish Melyridæ in the eleventh volume of the Berlin Zeitschrift. Thomson again appears to be at variance both with Mulsant and Kiesenwetter, so that the group is somewhat confused. The synonymy appears to me to stand thus :—

1. Dasytes oculatus, *Kies.* (1867) = coxalis, *Muls.* (1868) = plumbeus, *Ill.*, *Thoms.* (nec *Müll.*)
2. D. plumbeus, *Müll.*, *Kies.* = flavipes, *Oliv.*, *Muls.* (nec *Fab.*) = fusculus, *Thoms.* ? (nec *Kies.*)
3. D. plumbeo-niger, *Goeze* = æratus, *Ste.* = ærosus, *Kies.*

= plumbeus, *Oliv.*, *Fourc.*, *Muls.* (nec *Müll.*) = subæneus, *Thoms.*, *Crotch Cat.* (nec *Schönh.*)

The three species have a considerable resemblance in form and colour. D. plumbeo-niger may be known by its concolorous antennæ and legs. The males of D. oculatus are distinguished by the large globose eyes, the space between which is much narrower than in D. plumbeus: the females are more difficult, but in D. oculatus the base of the antennæ and the anterior coxæ are testaceous, while in D. plumbeus only the second joint of the antennæ is testaceous, and the eyes are less developed in the latter species. I have received from M. Eichoff specimens of D. ærosus, *Kies.*, which agree perfectly with the common English species, æratus, *Ste*), which, however, will take Goeze's name, plumbeo-niger; Kiesenwetter appears formerly to have confounded it with D. plumbeus. The range of the three species in England requires further observation; my specimens of D. oculatus are all from Mr. Wollaston, who found them in Lincolnshire, while my D. plumbeus are from the neighbourhood of London. It seems very probable that more species of the genus Dasytes will occur in England; D. obscurus, *Gyll.*, can hardly be wanting, and the true D. subæneus may be confidently expected, and may at once be known by its tarsi, which exceed the tibiæ in length."

New British Beetle.—Mr. G. R. Crotch sent for exhibition Trachyphlœus laticollis (*Schönherr*, vii. 118), a beetle new to the British list; five specimens had been captured some years ago at Weston-super-Mare. He considered the T. anoplus of Förster, and the T. rectus and spinimanus of Thomson, to be synonymous with T. laticollis, which ought to be placed with T. alternans, spinimanus and scabriusculus, being nearest the former by the weak armature of the tibiæ: the comparatively dense setæ separate it from T. alternans and also from T. spinimanus.

Entomological Notes, Captures, &c.

Economy of Argiolus.—I want to know something more about the holly blue (Lycæna Argiolus): it is quite abundant this year all over the place; we always get it, but I have never known it so broadcast as this year. Holly cannot be its food-plant, or it would come off with very short commons in this neighbourhood. In the garden it is on Laurustinus, and in the hedges and along the roadsides everywhere.—*V. R. Perkins; Wootton-under-Edge, May* 10, 1870.

Larvæ of Argiolus. — The flowers of the holly, ivy and buckthorn are the aliment of the larvæ. These three plants flower but once a year; and while the holly and buckthorn bloom in May, the ivy flowers late in autumn. Yet two broods occur in places where only one of the food-plants named is found; and it would appear, from the condition of the spring brood, as if they had not hybernated, and that there must therefore have been two broods of caterpillars. I have seen a female in August depositing eggs amongst ivy, so probably it hybernates in the pupa state. — *J. R. S. Clifford.*

[Mr. Horley, of Hoddesdon, informs me that in the November of last year he beat a larva of Argiolus from the blossoms of the ivy, on which it appeared to have been feeding: it changed to a pupa during the same month, and to a butterfly during April of the present year: this information, coupled with the preceding, seems to point to ivy-bloom as the food of the second generation of the larvæ of Argiolus, and also shows that it hybernates in the pupa state. —*E. Newman.*]

Remarkable Variety of Euphrosyne. — I have just taken two specimens of a beautiful variety of Euphrosyne, both exactly alike—all black, with a few blotches of red. — *G. Parry; Church Street, St. Paul's, Canterbury, June* 14.

Colias Edusa in June. — I was rather surprised by taking a specimen of Colias Edusa this afternoon near Winchfield Railway Station. It is a large male, and from the worn appearance of its wings I should say it had hybernated. I send this account because it confirms your statement in the 'British Butterflies' (p. 17) as regards the hybernation of this species. Hybernated specimens of Cardui are now common; and I also met this afternoon with hybernated Io and Rhamni.—*J. J. Spiller; Odiham, Hampshire, June* 14.

Deilephila livornica at Brighton. — I have just seen on the setting-board a specimen of D. livornica, slightly rubbed, taken on Tuesday, May 31st, at Brighton, by A. Gates, of 51, Belgrave Street.—*T. W. Wonfor; Brighton, June* 4.

Deilephila livornica at Looe.—I have again a very fine specimen of D. livornica: it was taken in this neighbourhood on the 19th instant. On opening it to clean I found it filled with eggs: they are of the same green colour as I have found in most moths of the same order. When brought to me it was almost dead, but in very good preservation: I have set it up, and think it a good specimen. I find the specimen I sent to you in 1867 was taken on the 17th of May; therefore I conclude this to be the time of their usual appearance. The boy who captured the moth is the son of an old fisherman, who is now almost unable, from asthma, to follow his occupation, and is in great poverty; so if you know of any person who will give a few shillings for the moth, I would give it to the old man, who I think would be very grateful for it.—*Stephen Clogg; Looe, May* 23, 1870.

Deilephila livornica at Waltham Abbey. — A fine specimen of D. livornica was taken at Waltham Abbey, Essex, by Mrs. G. Blount, of Paradise Row, on April 27th last. — *R. L. Davis; Waltham Cross, June* 21, 1870.

Abundance of Leucophasia Sinapis at Ipplepen, South Devon.—This elegant butterfly has been extremely abundant during the latter part of last month, and up to the present time. It does not appear to be confined to any particular locality, or to its usual resort of woods, being generally distributed, and occurring in almost every lane and hedgerow in this neighbourhood. It is among the commonest "whites" of the season, ranking in point of number with Napi and Cardamines.—*F. Wilkinson; Ipplepen, S. Devon, June* 13.

[Will Mr. Wilkinson state whether he has ever seen this butterfly settle, and, if so, on what plants or flowers: the question is one of considerable interest.—*E. Newman.*]

Dianthœcia irregularis (Echii) bred. — I have the pleasure of recording the first appearance of Dianthœcia irregularis in a breeding-cage in this country. A specimen appeared this afternoon in one of mine. — *(Rev.) A. H. Wratislaw; School Hall, Bury St. Edmunds, June* 13.

Petasia nubeculosa in Scotland. — I hear that Mr. Eedle has taken one specimen of Petasia nubeculosa, and has sent Mr. Doubleday a few eggs of Ceropacha flavicornis.—*E. N.*

Dicranura vinula with three wings. — I observe that at page 98 of the June 'Entomologist' the Rev. J. Greene notes the breeding of Euchelia Jacobeæ with three wings only, the missing limb being the right under wing; he adds that it is not an uncommon occurrence among the Gometræ, but not recorded in the Bombyces. The very day the number of the 'Entomologist' reached me I bred a D. vinula which looked a very good specimen, but on proceeding to set it I found no trace of a right under wing; I therefore left the insect till shaped; and if the Rev. J. Greene should wish to possess it I can only say that I shall have great pleasure in sending it to him.—*S. Radcliff Fetherstonhaugh; 17, Eccles Street, Dublin, June* 11, 1870.

Dysthymia luctuosa near Stroud.—In a field about a mile from Stroud I have caught three specimens of Dysthymia luctuosa: they seem to be very local, as I only caught them in one corner of the field.—*M. G. Musgrave; George Street, Stroud, Gloucestershire, June* 9, 1870.

American Moth-trap. — In reply to S. T. C. (Entom. v. 61), when the late Mr. Hopley was here, on his intended visit to the Isle of Man, he gave me a glowing account of a wonderful apparatus he had brought with him to secure new species, &c., but it was not unpacked until we reached the island, else I am sure, from its self-evident optical mismanagement, we should never have taken it there at all, for on seeing it I pointed out that, however large the light within it might be, the rays therefrom were effectually locked inside by the angles of the glass in front being so near the angle of the light-rays; hence little light could be distributed, except from the small aperture by which the moths were expected to enter the trap. However, having the evil with us, and Mr. Hopley pressing so hard that it should have a fair trial, we had the machine conveyed to Onchan Bay. The night was an admirable one for lamp work,—dark, warm and drizzly,—such as, with a properly constructed moth-trap, I had repeatedly had great success upon; and in consequence of my successful practice on the coast with lanthorns, Mr. Hopley pressed me to undertake the manipulation of the "moth-trap." I confess I entered reluctantly upon my task, feeling convinced I should lose a night's work; yet, hoping against hope, I placed the trap against a rock-face on a raised ledge, and waited for darkness to become visible by the light of the lanthorn, like "patience on a monument smiling at grief." Tiring of seeing moths flying everywhere except into the trap, I commenced netting them in the usual way, working towards my friends, who were some two hundred yards away: at this distance we could just see the trap-light, whilst the gas-lamps at Douglas, two or three miles away, were bright objects. We returned to the trap: the rain alone seemed to have found a way into it, for it kept on fiz, fiz, fiz, fiz, down on to the light, causing us to pass our jokes about its really being a "fizzing" moth-trap, whatever might be said of its catching capabilities. Towards midnight even poor Hopley gave it up as a bad job. And now came the finale. I voted to leave the heavy, useless thing where it was, to become a fossil; my friends voted we carried it home. I struggled with it as far as I could carry it; my friend did the same: when about half a mile from home Mr. Hopley took his spell, and realized for the first time that the whole apparatus was a worthless, heavy, troublesome thing. This may sound shocking to those who have purchased these traps, but it is not so bad as it appears at first sight; for if they will destroy the inverted glass front, and have a flat front glass put in rather over half-way up, and above this two or three strips of glass about an inch and a half wide, overlapping like an open Venetian blind, they will then have a practical moth-trap, if not so portable as a proper one, which should be capable of being packed in a paper parcel, twelve inches by ten, and two inches thick, and weigh under five pounds. If the drawers are destroyed, and a little hay, grass or fern put in, when set as I do, the approaches will be simplified, and be infinitely superior as a trap. Moths lie still amongst grass, &c., but I have no knowledge how they arrange themselves when they have sundry drawer spaces to choose from, as in Hopley's ridiculous apparatus.—*C. S. Gregson; Fletcher Grove, Edge Lane, Liverpool, May* 12, 1870.

Sound caused by Halias prasinana.—On the 4th of June, while collecting Lepidoptera in a wood, I was rather startled about dusk by the sudden appearance of a couple of insects, whirling frantically around each other, close above my head, and both uttering a shrill and peculiar sound at quick intervals. It much resembled the sound made by small birds which we sometimes see chasing each other. By a fortunate stroke of the net I secured one of them, when it continued to utter its peculiar note until I boxed it. It proved to be a male specimen of Halias prasinana. I would ask you if it is a thing of common occurrence with this species, or whether it has been previously noticed by entomologists? A week later I took eight specimens of this insect, by beating, in the same wood. — *Thomas H. Hedworth; Dunston, Gateshead, June* 15, 1870.

[I never heard of such a circumstance, and think it possible the sound may have proceeded from some other source.—*E. Newman.*]

Pea Weevil. — An insect, apparently a beetle, is most destructive this year to the crop of peas as they come up in rows: it begins its work of destruction at the edge of the leaf, cutting out a small notch, and continues until the whole plant is destroyed. Can you tell me the name, and whether any remedy is known?—*H. Masters.*

[The insect is a weevil of the genus Sitones. I believe the specimens sent are Sitones lineatus, but of this I am by no means assured: the polished elytra, proving that the creatures had been somewhat too freely handled, rather militate against the determination of a species. Soot, lime-water, lime thoroughly slacked and pulverized, have been found useful as preventives, but must be used with great caution, otherwise they will prove more injurious than beneficial.—*E. Newman.*]

Pea Weevil. — I have read with very great interest your letter on the turnip weevil in Saturday's 'Field;' and I trust you will not think that I am taking a liberty in applying to you for information respecting another weevil which has already this year destroyed nearly one hundred yards of my peas. I have sent you specimens by this post, and I shall deem it a great favour if you will tell me how to exterminate the pest. I have already tried soot and lime with no effect, and, as a last resource, go out after dark, lantern in hand, and kill every little beast that I can lay hands upon. Two rows of peas, in all about eighty yards, I have buried a couple of feet deep, as not a single whole leaf was left on the crop. During the day the weevil (am I right in calling him Curculio lineatus?) hides himself, but at night he may be seen busily employed; and from observations which I have made I have reason to think that this is a season of the year when the species is propagated.—*Frederick Rigby; Runcorn, Cheshire.*

[The insects sent are Sitones of two species, which the late Mr. Walton, so universally known for his knowledge of the Curculionidæ, named for the collection of the Entomological Club, S. lineata of Linneus and S. flavescens of Marsham: the damage they have this year done to the peas cultivated in London gardens is excessive, and is certainly partly attributable to the excessive drought which has prevailed here.—*E. Newman.*]

Captures in North Staffordshire.—My friends and myself have been fairly successful this season in North Staffordshire. Amongst insects new to us in this district are Lithorhiza (several), Æscularia, Impluviata (several), Ridens (two). On May 25th I had the satisfaction of taking a fine male Bicuspis, just emerged from its pupa-case, on an alder tree at Whitmore, three and a half miles from here: this insect has not been taken before in this district, so far as I know. Mr. Smith, the gentleman who took a pair of T. Sphegiforme two years ago at the Burnt Woods, has again taken a fine male hovering over a low birch-bush at Craddock's Moss. Other good takes have been Dolobraria (three), M. Bombyliformis (abundant at Craddock's Moss), A. Menyanthidis (three), Camelina (two), A. luteata, E. Heparata, A. tincta and A. herbida. I have also had out in the breeding-cage a male black Betularia, the first I have seen in this neighbourhood. This district has been pretty well worked for the last three or four years, and has well repaid our exertions. On the whole it is turning out a very fair locality. I should be glad if any of your correspondents who have been succesful in rearing B. Rubi would tell me how they managed it. —(*Rev.*) *Thos. W. Daltry; Madeley Vicarage, Newcastle, Staffordshire.*

Gall on Ground Ivy.— I enclose a curious-looking gall on ground ivy: it may be common, but I never before saw it. It is rather plentiful in one spot where I obtained these. Should you like to have any more I will send you some with pleasure.—*James Pristo; Alverstone, June* 7, 1870.

[I have some similar galls in my own garden: they are made by a Cynips, which Mr. Müller informs me is Aulax sadaudi.—*E. Newman.*]

THE ENTOMOLOGIST.

Nos. 80 & 81.] AUGUST, MDCCCLXX. [Price 1s.

Irish Insect-hunting Grounds. By Edwin Birchall, Esq.

No. 6.—The County Wicklow.

> "Oh, when I am safe in my sylvan home,
> I mock at the pride of Greece and Rome;
> And when I am stretched beneath the pines,
> Where the evening star so holy shines,
> I laugh at the lore and pride of man,
> At the sophist school and the learned clan;
> For what are they all in their high conceit,
> When man in the bush with God may meet?"
>
> Emmerson.

As a field for Entomology the county Wicklow scarcely realizes the anticipations which its varied and beautiful features inspire; but still I believe a larger number of Lepidoptera have been observed within its limits than in any other county of Ireland.

A chain of granite mountains crosses the county, and occupies more than half its area, the summits ranging from 2000 to 3000 feet in height. The insect population of these elevated districts is very limited in extent, contrasting strongly with what I have observed on the Perthshire mountains, where every few hundred feet of elevation produces a fresh species, and an ascent of 3000 feet seems an easy task when the stages are marked by Blandina, Cassiope, Ericetaria, Alpinalis, and finally Trepidaria flutters at your feet as you step on the topmost ridge.

Insects are more abundant upon the slopes of Cross-Craig and Grayvel than in the Valley of Loch Rannoch at their feet, but a very short ascent above the teeming Vale of Powerscourt, up the sides of any of the surrounding mountains, takes the climber into a region where all traces of insect life have disappeared. Difference of soil, and consequently of vegetation, has no doubt something to do with this; but it does not, to my mind, wholly explain the total absence even of mountain species.

Mr. Wollaston, in his work on the variation of species, suggests that this remarkable difference between one mountain district and another has its explanation in geological movements of subsidence and elevation. He says:—"During my researches in mountain tracts I have usually remarked that the highest points of land either teem with life or else are perfectly barren. My own experience would certainly tend to prove that, in a general sense, one or other of these extremes does almost constantly obtain. And, although I would not wish to dogmatize on phenomena which may in reality be explicable on other hypotheses, it would perhaps be worth while to inquire whether the geological movements of subsidence and elevation will not afford some clew to the right interpretation of them. Be this, however, as it may, I can answer, that in many countries where there are strong indications of the former, the alpine summits harbour an insect population to a singular extent; whilst in others, where the latter is as distinctly traceable, the upland ridges are comparatively untenanted. Where the gradual lowering of a region has taken place, there will be, of necessity, an accumulation of life on its loftiest pinnacles—for, even allowing a certain number of species (which *even formerly* were only just able to find a sufficient altitude for their development) to have perished, we shall have concentrated at that single elevation the residue of all those which have survived *from the ancient elevations above it*. But if, on the other hand, an area, already peopled, be in parts greatly upheaved, there will be *either* a universal dying out, from the cold, of a large proportion of its inhabitants, or else an instinctive striving amongst them to desert the higher grounds on which they have been lifted up, and to descend to their normal altitudes; in both cases, however, the present summits will display the same feature—namely, utter desolation." (Pp. 115, 116).

So far as the Wicklow mountains are concerned, the facts seem to accord with this hypothesis, the upheaved granite being almost devoid of insect life, though it must be admitted that the amount of elevation of these hills is comparatively trifling, and it is somewhat difficult to consider it adequate to produce the extensive extinction or migration of species I am supposing.

Amidst the hills there are, however, lakes, ravines, and richly-wooded glens, where the naturalist will find ample occupation, and, of the latter, Powerscourt claims special notice: its vicinity to Dublin has caused it to be more frequently visited than other places, and thus enhanced its entomological reputation; but the Deer Park is truly a collector's Paradise. It is a secluded valley, of about two miles in length, between the Sugarloaf and Douce mountains, and is terminated by perpendicular cliffs, over which the Dargle river leaps with a clear fall of upwards of a hundred feet. Shaded by its grand old oaks and most ancient hollies,

> "There through the summer day
> Cool streams are laving,
> There while the tempests sway
> Scarce are boughs waving."
> SCOTT.

The late Mr. Tardy, of Dublin, one of the earliest and most zealous students of Irish Entomology, was so attracted to this neighbourhood that he used to pitch a tent in the Valley, and camp out for weeks in the summer. Amongst his notable discoveries was that of Mesites Tardii in the hollies of Powerscourt: it is still to be found there, although sparingly compared with Killarney.

The following species of Lepidoptera (besides hosts of commoner things) have been taken at Powerscourt, mostly in the Deer Park :—Argynnis Paphia, Melitæa Artemis, Vanessa C-Album, Thecla Quercus, Lycæna Argiolus, Nemeobius Lucina, Pamphilus Linea, Sesia bembeciformis, Endromis versicolor, Selenia lunaria, Cleora viduaria, Boarmia roboraria, Geometra papilionaria, Aspilates citraria, Eupithecia innotata, E. constrictata, E. pygmeata, E. expallidata, Melanthia albicillata, Melanippe hastata, Scotosia undulata, Lobophora viretata, Platypteryx lacertula, Notodonta dictæoides, N. dictæa, N. dromedarius, N. chaonia, N. ziczac, N. trepida, Cymatophora ocularis, Acronycta leporina, A. Alni, Leucania obsoleta, Nonagria despecta, Hadena contigua, Celæna Haworthii, Plusia bractea.

Lough Dan and the Devil's Glen.

The village of Roundwood lies between the two, and is a convenient point from which to investigate the district. Lough Dan is the largest of the Wicklow lakes, though not much more than a mountain tarn, its length being only a mile and three-quarters by an average width of half a mile: at its southern end, near Roundwood, there are extensive bogs and copses: from what I have seen of these I feel sure they would repay further examination. The following are the most notable species which have been observed in this locality:—Sesia bombyliformis, Ptilodontis palpina, Eurymene dolabraria, Dasydia obfuscata, Agrotis agathina, Hoporina croceago, Dasycampa rubiginea, Epunda lutulenta, Hadena satura and suasa, Calocampa vetusta and exoleta. The river Vartry runs through the Devil's Glen, forming a fine waterfall at its head.

Looking up at the shattered crags of the ravine (I don't know how many hundred feet in height), the geological theory, that the little stream at the bottom has in the course of ages worn out the great chasm, seems scarcely more credible than the popular story which says it was formed at a blow by man's spiritual enemy. It is the universal tendency of the Irish peasant to attribute everything wild and wonderful to supernatural agency, and the devil appears (formerly at all events) to have a very busy time of it in Ireland: thus the Scalp near Dublin was kicked through the mountain by the devil, when, on one occasion, driving a flock of sheep from Wicklow to Dublin, he found his way impeded by a steep and rugged hill; and the Rock of Cashel is said to be a mouthful—bitten by the same personage—out of a neighbouring mountain, and dropped on the plain when found indigestible: a huge gap in the crest of the Devil's-bit Mountain, visible for miles around, illustrates and proves the legend! The Irish peasant lives in an atmosphere of romance and supernaturalism, which has faded out of (if it ever existed in) the prosaic English mind. For him the age of miracles has not passed,—his church so teaches,—and he accepts with alike simple faith the wild legends—

That a wolf conversed with St. Patrick,
That he produced fire from ice,

That he raised his nurse from the dead,
That he expelled a devil from a cow,
That he changed water into honey,

and the Scripture narratives—

That water was changed into wine,
That the sun stood still at Joshua's command,
That Balaam's ass spoke Hebrew.

The coast-line of Wicklow deserves more attention from entomologists than it has yet obtained: many insects, not of common occurrence elsewhere, are to be found here in plenty; amongst them, Leucania littoralis, Mamestra abjecta and furva, Luperina Cæspitis, Agrotis præcox. That very local shrub, Hippophae rhamnoides, the food-plant of Deilephila Hippophae, grows in profusion on the shore at Coasttown. Mr. Stainton remarks, in the 'Manual,' that "Deilephila Hippophaes is a probable British species which should be looked for on the south coast, where its food-plant, the sea buckthorn, grows; the green larva with a pink horn is said to feed in June and July, and again in September and October." So far the search for the insect has been unsuccessful, but my friend Mr. More, of the Royal Dublin Society, who discovered this station for the plant, has observed the leaves to be much eaten by some unknown larvæ.

EDWIN BIRCHALL.

Newlay, April 15, 1870.

A List of the Lepidoptera collected by J. K. LORD, Esq., *in Egypt, along the African Shore of the Red Sea, and in Arabia; with Descriptions of the Species new to Science, by* F. WALKER, Esq., F.L.S., G.S., &c.

(Continued from p. 57.)

(For localities in which insects were collected by Mr. Lord, see page 48.)

It is not probable that the species of Lepidoptera Heterocera are numerous in these regions. The new species here described are not remarkable in character, and the specimens of them are somewhat worn. A few of the species are European, others are natives of S. Africa or of Hindostan, and three are very widely spread over the world. The numerous gardens about Mount Sinai may have been the means of introducing some of the moths which dwell there.

Fam. AGARISTIDÆ.—Gen. ÆGOCERA, *Latr.*

1. *Ægocera Venulia.* Phalæna Venulia, *Cram. Pap. Exot.* ii. 107, pl. 165, f. D. Hor Tamanib. Inhabits Hindostan.

Fam. CALLIMORPHIDÆ.—Gen. DEIOPEIA, *Steph.*

2. *Deiopeia pulchella.* Tinea pulchella, *Linn. Syst. Nat.* ii. 884. Egypt and Arabia. Inhabits Europe, Africa, Asia, Australasia and Australia.

Fam. LIPARIDÆ.—Gen. EUPROCTIS, *Hübn.*

3. *Euproctis? innotabilis.* Female. White, moderately stout. Palpi pale yellowish, slender, slightly decumbent, extending somewhat beyond the head, with a short fringe beneath; third joint lanceolate, minute. Abdomen extending a little beyond the hind wings. Legs slender; hind tibiæ with long slender spurs. Wings without markings. Length of the body 4 lines; expansion of the fore wings 14 lines. Wâdy Gennèh.

Fam. PSYCHIDÆ.—Gen. PSYCHE, *Schrank.*

The two following species, perhaps, do not belong to this genus:—

Male. Body moderately stout. Head short, a little narrower than the prothorax. Eyes globose, large, prominent. Proboscis none. Palpi compressed, with a short fringe beneath, extending somewhat beyond the head, very slightly decumbent; third joint very small. Antennæ more than half the length of the body, very broadly pectinated; branches pubescent. Abdomen extending somewhat beyond the hind wings; apical tuft long, thick. Legs stout, with a short fringe; tibiæ unarmed. Wings moderately long and broad. Fore wings very much longer than the hind wings, rounded at the tips; exterior border slightly rounded, very oblique: first vein near and parallel to the interior border; second proceeding from somewhat beyond two-thirds of the length of the discoidal areolet; third near the end; fourth and fifth at the end of the above areolet; fifth, sixth, seventh and eighth at equal distances from each other; eighth and ninth united at a short distance from the tip. Hind wings with the first and second veins near the interior border; third proceeding from beyond two-thirds of the length of the discoidal areolet; fourth proceeding from the discoidal areolet at beyond two-thirds of the length of the latter; fifth and sixth forming near their base a common petiole which proceeds from the tip of the areolet; seventh also proceeding from the tip; eighth emerging from the fore border of the areolet; ninth and tenth formed by a forked vein which emerges from the eleventh and subcostal vein rather near the base of the wing, and whose fork is about half its length.

4. *Psyche?? luteipalpis.—Male.* White, shining. Antennæ blackish. Palpi luteous. Fore wings with a black elongated dot at the end of the discoidal areolet. Length of the body 6 lines; expansion of the fore wings 15 lines. Wâdy Gennèh.

Male. Body moderately stout. Head narrower than the prothorax. Eyes globose. Proboscis none. Palpi short, slender, hardly fringed, very slightly decumbent; third joint very minute. Antennæ pectinated, very much more than half the length of the body; branches moderately long. Abdomen extending a little beyond the hind wings; apical tuft small, short. Legs smooth, moderately stout; tibiæ unarmed. Wings in structure much like those of the preceding species.

5. *Psyche?? nigrimanus. Male.*—Whitish. Palpi, antennæ and fore legs black. Hind wings with a small black spot on the fore border and near the tip of the discoidal areolet. Length of the body 5 lines; expansion of the fore wings 13 lines. Hor Tamanib.

Fam. NOTODONTIDÆ.—Gen. RILIA, *Walk.*

The following species differs somewhat from the typical structure of the genus.

6. *Rilia?? lignifica. Female.*—Fawn-colour, stout. Body blackish beneath. Head and palpi ferruginous. Proboscis obsolete. Palpi porrect, stout, not extending beyond the head; third joint obtuse, very short. Antennæ smooth, rather stout. Fore tegulæ of the prothorax mouse-colour. Abdomen cinereous, extending a little beyond the hind wings.

Legs blackish, rather short and stout; femora and tibiæ fringed; spurs stout. Fore wings with an irregular costal mouse-coloured stripe, and with some postmedial longitudinal lines of the same hue; a whitish patch in the disk; exterior border rounded, moderately oblique; under side brownish, with a pale fawn-coloured border. Hind wings cinereous, slightly hyaline, with a blackish discoidal dot, with a broad diffuse mouse-coloured border, and with black marginal points. Length of the body 6½ lines; expansion of the fore wings 16 lines. Harkeko.

Fam. Xylophagidæ.—Gen. Laphygma, *Guen.*

7. *Laphygma cycloides*, Guen. Noct. i. 157. Harkeko. Inhabits S. Africa.

8. *Laphygma retrahens*. *Male.*—Cinereous, white beneath. Proboscis tawny. Palpi rather slender, obliquely ascending, rising very little higher than the head, with a short thick fringe beneath; second joint with a brown band on the outer side; third conical, less than one-fourth of the length of the second. Antennæ brown, very minutely setulose. Abdomen extending a little beyond the hind wings; apical tuft thick, short. Fore wings with some brown speckles, and with two indistinct zigzag transverse brown lines; first line interrupted by the orbicular mark; second beyond the reniform, mostly double; orbicular and reniform marks and a zigzag submarginal line pale testaceous; orbicular rather large, nearly round; reniform of the usual shape. Hind wings white, semihyaline, cinereous along the costa; veins brown. Length of the body 6 lines; expansion of the fore wings 13 lines. Convent Garden, Mount Sinai.

Fam. Apamidæ.—Gen. Mamestra, *Ochs.*

9. *Mamestra mixtura*. *Female.*—Hoary, rather slender, white beneath. Palpi speckled with brown, broadly fringed beneath, obliquely ascending, not rising higher than the vertex; third joint obtuse, extremely short. Abdomen whitish, extending very little beyond the hind wings. Fore wings with brown speckles, with two diffuse zigzag transverse brown lines, with an intermediate zigzag brown band, and with a broad brown marginal band which includes a zigzag hoary line; orbicular mark represented by a black point; reniform mark forming a small black lunule. Hind wings

white, broadly bordered with cinereous. Wings beneath with a cinereous border. Length of the body 7½ lines; expansion of the fore wings 18 lines. Wâdy Gennèh.

10. *Mamestra immiscens.* *Female.*—Hoary, rather slender, white beneath. Palpi obliquely ascending, broadly fringed beneath, not rising higher than the vertex; third joint obtuse, very short. Abdomen whitish, extending very little beyond the hind wings. Fore wings with numerous brown speckles and with four irregular brown bands; first band antemedial; second postmedial, deeply undulating; third submarginal, dentate; fourth marginal; uniform mark forming a very short oblique brown streak. Hind wings whitish, with a broad diffuse cinereous border. Wings beneath with a blackish marginal band which is broadest at the tips of the fore wings. Length of the body 7½ lines; expansion of the fore wings 19 lines. Closely allied to M. mixtura. Wâdy Gennèh. Mount Sinai.

Gen. CELÆNA, *Steph.*

11. *Celæna intractata.* *Female.* — Ferruginous. Body whitish beneath. Antennæ smooth, slender. Abdomen cinereous, a little shorter than the interior border of the hind wings. Legs smooth, slender; spurs long and slender. Fore wings with five white costal points, and with three brown zigzag transverse lines; first line antemedial; second postmedial, bordered with cinereous on the outer side; third submarginal; fringe cinereous; orbicular and reniform marks indeterminate. Hind wings and under side of the fore wings cinereous, without markings. Length of the body 5 lines; expansion of the fore wings 12 lines. The specimen described is without palpi. Harkeko.

12. *Celæna? plagifera.* *Male.*—Cinereous-brown, rather stout. Palpi porrect, with a short fringe beneath, extending rather beyond the head; third joint elongate-conical, about one-fourth of the length of the second. Antennæ minutely setulose. Abdomen cinereous, extending a little beyond the hind wings; apical tuft short. Legs stout, femora slightly fringed; spurs long, stout. Fore wings with two undulating transverse black lines, one antemedial, the other postmedial; a large black patch joining the inner side of the first line; orbicular and reniform marks forming two large black ringlets; reniform transversely elongated, contracted in the

middle; a submarginal cinereous zigzag line; marginal festoon black. Hind wings pale cinereous. Wings beneath white, mostly cinereous towards the exterior border. Length of the body 4 lines; expansion of the fore wings 11 lines. Hor Tamanib.

Fam. Noctuidæ.—Gen. Agrotis, *Ochs.*

13. *Agrotis corticea*, Wien. Verz. 81. Wâdy Ferran. Inhabits Europe.

14. *Agrotis spiculifera*, Guen Noct. ii. 266. Hor Tamanib. Inhabits S. Africa.

15. *Agrotis internexa.* *Female*—Whitish, rather stout, white beneath. Palpi porrect, with a short fringe beneath, extending rather beyond the head; second joint mostly black on the outer side; third elongate-conical, nearly half the length of the second. Abdomen extending rather beyond the hind wings. Legs very slender; femora slightly fringed; tibiæ and tarsi spinulose. Fore wings brownish cinereous, with a lanceolate brown black-bordered streak near the base, and with a brown streak between the black-bordered orbicular and reniform marks; orbicular lanceolate, not oblique; reniform large, of the usual shape; marginal points black. Hind wings pure white, semihyaline. Wings beneath without markings. Length of the body 6—7 lines; expansion of the fore wings 15—16 lines. Hor Tamanib.

16. *Agrotis inobtrusa.* *Male.*—Cinereous, stout, white beneath. Head with two indistinct brownish bands. Palpi obliquely ascending, fringed beneath; second joint mostly brown above; third porrect, linear, rounded at the tip, less than half the length of the second, with which it forms an obtuse angle. Antennæ serrated and pubescent for about three-fourths of the length from the base. Fore tegulæ with an indistinct slender brownish band. Abdomen extending rather beyond the hind wings. Fore wings with two antemedial and with two postmedial indistinct transverse zigzag brownish lines; first postmedial line contiguous to the reniform mark, which, like the orbicular mark, is white; orbicular mark large, nearly round; reniform of the usual shape. Hind wings white. Wings beneath without markings. Length of the body 7½ lines; expansion of the fore wings 16 wings. Mount Sinai.

17. *Agrotis? mollis.* *Male.*—Whitish, rather slender. Palpi rather slender, obliquely ascending, not rising higher than the vertex, slightly fringed beneath; second joint blackish above; third elongate-conical, about one-fourth of the length of the second. Antennæ hardly pubescent. Abdomen extending somewhat beyond the hind wings; apical tuft small. Fore wings with four diffuse blackish zigzag transverse lines; first line near the base; second antemedial; third postmedial; fourth submarginal; reniform mark brown, large, of the usual form. Length of the body 6 lines; expansion of the fore wings 16 lines. Mount Sinai.

18. *Agrotis?? marginata.* *Male.*—Whitish, stout. Palpi porrect, stout, not extending beyond the head; third joint extremely short. Antennæ minutely pubescent. Thorax smooth. Abdomen extending very little beyond the hind wings; apical tuft small. Legs stout, hardly fringed. Fore wings with four black slender zigzag bands; first, second and third bands much abbreviated towards the interior border; first and third more abbreviated than the second; fourth not abbreviated, contiguous, except near the costa, to a very broad marginal blackish band. Hind wings with a broad cinereous border. Length of the body 8 lines; expansion of the fore wings 21 lines. Wâdy Gennèh. Mount Sinai.

Fam. XYLINIDÆ.—Gen. XYLINA, *Ochs.*

Group n.

Female. Body moderately stout. Proboscis long, slender. Palpi ascending, very short and slender, fringed beneath, not rising higher than the base of the rostrum; third joint conical, not more than one-fourth of the length of the second. Antennæ slender. Abdomen not extending beyond the hind wings. Legs smooth, slender; hind tibiæ with very slender spurs. Wings broad; exterior border slightly dentate. Fore wings slightly acute; exterior border slightly rounded, rather oblique.

19. *Xylina? infusa.* *Female.*—Mouse-colour, whitish beneath. Abdomen cinereous. Fore wings with a few testaceous costal dots, with two large testaceous costal patches, and with a zigzag testaceous submarginal line; marginal festoon blackish. Hind wings cinereous, with a broad mouse-

coloured border; wings beneath with a broad border of the same hue. Length of the body 5 lines; expansion of the fore wings 14 lines. Hor Tamanib.

Fam. HELIOTHIDÆ.—Gen. HELIOTHIS, *Ochs.*

20. *Heliothis peltiger*. Noctua peltigera, *Wien. Verz.* 89. Mount Sinai. Inhabits Europe, S. Africa, Hindostan, and New Zealand.

Fam. ACONTIDÆ.—Gen. EUPHASIA, *Steph.*

21. *Euphasia? compta*. *Male.*—White. Thorax with a few black scales; fore tegulæ bordered with fawn-colour. Abdomen slightly gilded; apical tuft fawn-colour, short, quadrate. Wings elongate. Fore wings pale cinereous; a broad reddish-brown band very near the base, speckled and bordered with black, and having along its outer side a narrow white band; space along the exterior border slate-colour, black-speckled, widest hindward, with an undulating outline and including an undulating white line; exterior border slightly rounded, rather oblique. Hind wings with a deeply undulating postmedial line and a submarginal band of brown speckles; marginal line brown; a broad chalybeous black streak near the interior angle. Wings beneath without markings. Length of the body 4½ lines; expansion of the fore wings 12 lines. Mount Sinai.

Gen. ACONTIA, *Ochs.*

22. *Acontia partita*. *Male.*—Pure white. Palpi slender, porrect, hardly extending beyond the head, with a short fringe beneath; third joint conical, minute. Antennæ smooth. Thorax very stout. Abdomen extending rather beyond the hind wings; apical tuft thick, slightly compressed. Legs smooth. Fore wings with the exterior half obliquely purple; this hue including an irregular interrupted undulating black band and two exterior black marks, and bounded on the inner side by an undulating black line. Hind wings pale yellow, broadly bordered with pale fawn-colour. Wings beneath whitish, with a pale fawn-coloured border. Length of the body 4 lines; expansion of the fore wings 9 lines. Harkeko.

23. *Acontia? inexacta*. *Female.*—Whitish, stout. Head pale fawn-colour and much rounded in front. Palpi porrect,

lanceolate, slightly fringed, extending rather beyond the head; third joint conical, minute. Abdomen extending a little beyond the hind wings. Fore wings with blackish speckles, with four blackish patches, and with black marginal points; first patch antemedial, near the interior border; second at the end of the areolet; third costal, subapical; fourth on the exterior border. Hind wings with a brown spot on the disk and a broad brown border. Wings beneath without markings. Length of the body 4½ lines; expansion of the wings 10 lines. Hor Tamanib.

Fam. EURHIPIDÆ.—Gen. PENICILLARIA, *Guen.*

24. *Penicillaria petrificata. Male.*—Cinereous, stout, partly tinged with fawn-colour, pale cinereous beneath. Palpi stout, ascending, not rising higher than the vertex; second joint with a short thick fringe beneath; third subclavate, much shorter than second, which has two blackish marks on the outer side. Antennæ setose, slightly dentate. Fore wings with two black, oblique, bent, slightly undulating lines, of which the outer one diverges slightly from the inner one towards the interior border; a few less determinate oblique black lines nearer the base; an undulating submarginal line and a row of submarginal black dots which are bordered with white; reniform mark large, white, including two black dots; exterior border slightly festooned, very oblique. Hind wings whitish, slightly hyaline, broadly and diffusedly bordered with æneous. Length of the body 6 lines; expansion of the fore wings 15 lines. Hor Tamanib. Akeek Island.

Fam. PLUSIDÆ.—Gen. PLUSIA, *Ochs.*

25. *Plusia aurifera.* Noctua aurifera, *Hubn. Eur. Schm. Noct.* pl. 98, f. 463. Harkeko. Inhabits S. Europe, W. Africa, Madagascar and Java.

Fam. HYPOGRAMMIDÆ.—Gen. BRIARDA, *Walk.*

26. *Briarda? subapicalis. Male.*—Whitish, rather slender. Palpi obliquely ascending, extending somewhat beyond the head, with a short thick fringe; second joint speckled with black on the outer side; third linear, rounded at the tip, about one-third of the length of the second, with which it forms a slight angle. Antennæ stout, minutely pubescent.

Abdomen lanceolate, extending a little beyond the hind wings; apical tuft slightly compressed. Legs slender; femora fringed; tarsi with blackish bands. Fore wings with black speckles, and with an angular interrupted black streak which extends from the base and joins the interior border at about one-third of the length of the latter; two black costal dots near the base, and a black subapical patch. Hind wings white, with a broad brown border. Wings beneath without markings. Length of the body 8 lines; expansion of the fore wings 20 lines. The palpi are shorter than those of the typical species of this genus. Wâdy Ferran.

Fam. OPHIUSIDÆ.—Gen. SPHINGOMORPHA, *Guen.*

27. *Sphingomorpha chlorea.* Phalæna chlorea, *Cram. Pap. Exot.* ii. 12, pl. 104, f. C. Hor Tamanib. Harkeko. Tajura. Inhabits W. Africa, S. Africa, Hindostan and Ceylon.

Gen. ACHÆA, *Hübn.*

28. *Achæa Melicerte,* Drury Ins. i. 46, pl. 23, f. 1. Hor Tamanib. Akeek Island. Rafla. Inhabits Hindostan and Australia.

Gen. GRAMMODES, *Guen.*

29. *Grammodes stolida.* Noctua stolida, *Fabr. Ent. Syst.* iii. 2, 41. Hor Tamanib. Akeek Island. Inhabits Europe, S. Africa, and Hindostan.

30. *Grammodes? latifera. Female.*—Whitish, white beneath. Proboscis short. Antennæ minutely pubescent. Abdomen not extending beyond the hind wings. Legs slender; hind femora with a short fringe. Wings broad, with two irregular broad fawn-coloured bands, and with the space between the second band and the exterior border pale fawn-coloured; first band antemedial, narrowly bordered with black on the outer side, where it is slightly undulating; second deeply notched in the middle of the outer side, where it is bordered with black and exteriorly with whitish; marginal festoon brown. Fore wings with a fawn-coloured costal subapical patch, which is whitish-bordered on the outer side, and with a black apical spot. Hind wings with a whitish marginal spot on the outer side of the second band. Length of the body 5½ lines; expansion of the fore wings 15 lines. Convent Garden, Mount Sinai.

Fam. EUCLIDIDÆ.—Gen. TRIGONODES, *Guen.*

31. *Trigonodes Hippasia.* Noctua Hippasia, *Cram. Pap. Exot.* iii. 99, pl. 250, f. E. Harkeko. Inhabits Hindostan and Australia.

Fam. REMIGIDÆ.—Gen. REMIGIA, *Guen.*

32. *Remigia Archesia.* Noctua Archesia, *Cram. Pap. Exot.* iii. 145, pl. 273, f. F, G. Tajura. Inhabits W. Africa, Mauritius, Hindostan, China and Java.

Fam. HYPENIDÆ.—Gen. HYPENA, *Schrank.*

33. *Hypena obacerralis,* Walk. Cat. Lep. Het. 4th Ser. i. 53. Hor Tamanib. Harkeko. Inhabits W. Africa, Hindostan and Ceylon.

Fam. HERMINIDÆ.—Gen. LEUCANIMORPHA, *n.*

Female.—Body slender. Proboscis long, slender. Palpi erect, stout, rising much higher than the head; second joint with a thick conical tuft; third linear, truncated at the tip, about half the length of the second. Antennæ long, smooth, slender. Abdomen nearly flat, extending a little beyond the hind wings. Legs smooth, slender, rather long; tibiæ and tarsi spinulose; hind tibiæ with four long slender spines. Wings broad. Fore wings rounded at the tips; exterior border slightly rounded and oblique.

34. *Leucanimorpha disjuncta.* *Female.*—Cinereous. Abdomen with a black line on each side beneath. Wings with a very broad blackish border above and beneath, where they are white. Fore wings with two black longitudinal streaks in the disk; first streak near the base, ending behind the orbicular mark; second between the orbicular and the reniform; orbicular yellow, small, round; reniform subquadrate, partly white, including two black dots. Length of the body 6½ lines; expansion of the fore wings 15 lines. Dahleek Island.

35. N. G.? *tenebrifera.* *Female.*—Blackish, rather stout. Head with erect hairs. Proboscis short. Palpi porrect, very slender, extending a little beyond the head; third joint minute. Antennæ and legs smooth, very slender. Abdomen not extending beyond the hind wings. Fore wings with a black antemedial subcostal dot, with a postmedial transverse

undulating ferruginous cinereous-bordered line, and with a black cinereous-bordered marginal festoon; an indistinct zigzag cinereous submarginal line; exterior border slightly rounded, moderately oblique. Hind wings with a black marginal line. Wings beneath without markings. Length of the body 6 lines; expansion of the fore wings 16 lines. Rafla, Annesley Bay.

Fam. ENNYCHIDÆ.—Gen. HERBULA, *Guen.*

36. *Herbula determinata. Male.*—Fawn-colour. Body beneath and legs white. Palpi porrect, compressed, slightly fringed, white beneath; third joint conical, less than half the length of the second. Antennæ stout, setose. Abdomen blackish, extending rather beyond the hind wings; hind borders of the segments cinereous. Wings with a black discoidal streak, and with two zigzag transverse black lines, one antemedial, the other postmedial; three irregular broad brown bands,—of these the first and second are obsolete in the hind wings and the third is marginal. Wings beneath with a black mark in the disk, and a narrow postmedial black band. Length of the body 3½ lines; expansion of the fore wings 7½ lines. Most allied to H. Metagrisalis. Hor Tamanib.

Fam. ASOPIDÆ.—Gen. HYMENIA, *Hübn.*

37. *Hymenia recurvalis.* Phalæna recurvalis, *Fabr. Ent. Syst.* iii. 2, 237. Hor Tamanib. Harkeko. Inhabits America, Africa, Asia, Australia and New Zealand.

Fam. MARGARODIDÆ.—Gen. PHAKELLURA, *L. Guilding.*

38. *Phakellura indica*, Saunders, Zool. ix. 3070. Harkeko. Inhabits W. Africa, S. Africa, Hindostan, China, Ceylon and Australia.

Gen. MARGARONIA, *Hübn.*

39. *Margaronia unionalis,* Hübn. Verz. Schm. 358. Tajura. Inhabits S. Europe.

Fam. BOTYDÆ.—Gen. BOTYS, *Latr.*

40. *Botys venosalis,* Walk. Cat. Lep. Het., 7th Ser. iv. 1401. Hor Tamanib. Inhabits W. Africa and Hindostan.

(To be continued.)

Life-history of Aporia Cratægi.—The egg is laid in June, in clusters, on the leaves of Cratægus oxyacantha (whitethorn), and the young larvæ remain in company, under a tent-like web, throughout the autumn and winter and until the expansion of leaves in the next spring, when they emerge from their winter quarters, and, separating from each other, pass the remainder of their larval existence in comparative solitude. Towards the end of May they are full-grown, and then fall from their food-plant on the least annoyance, rolled in a tolerably compact ring, but with the head slightly on one side. The head is about equal in width to the 2nd segment: the body is almost uniformly cylindrical, the 2nd and 13th segments being slightly narrower than the rest; almost every part of the head and body is clothed with hair. The colour of the head and 2nd segment is dull smoky black; the shorter hairs of the head are black, the longer ones white: the dorsal surface of the body is black, with two bright rust-coloured stripes composed of minute rust-coloured spots, each of which has a central black dot which emits a rust-coloured hair; these stripes are interrupted at the incisions of the segments when the larva is crawling, but appear continuous when it is at rest: the ventral surface is gray, this colour extending above the spiracles, which are black; the division of the dorsal and ventral surface is abrupt and decided; the gray area is sprinkled with innumerable minute black dots, and emits a great number of feeble whitish hairs: the legs are black and the claspers gray. About the middle of May it spins a milk-white web over the surface of the hawthorn twigs, and, affixing itself to this, prepares for changing to a pupa, a compound silken cord being first attached to the sides, but not passed continuously over the back: the pupa has the head obtusely pointed, the back of the thorax sharply keeled, and the shoulders prominent; the abdomen has also a dorsal keel, and on each side a lateral keel, but neither of them is so prominent as that of the thorax; and the abdomen terminates in a curved and flattened horn, which is furnished with the usual hooks; the prevailing colour is yellowish white, varied with pure yellow and spotted with black; the brighter yellow is principally observable in the more salient points, as of the head and shoulders, and the lateral and dorsal keels of the abdomen;

but in these latter it is interrupted and incontinuous; the black forms a broad continuous stripe down the ventral surface, including the cases of the head, legs, antennæ, &c.; the wing-cases are yellow, bordered and spotted with black; the dorsal keel of the thorax is black, and the abdomen is abundantly spotted with black; the anal horn is yellow, with three longitudinal black marks. I have been most abundantly supplied with larvæ and pupæ, through the kindness of Mr. George Lock, of Newport, Monmouthshire, a gentleman who has distributed this interesting species most liberally among subscribers to the 'Entomologist.' I believe the usual and almost universal plan of including this butterfly with the familiar species of Pieris is a mistake: several characters of the larva and imago would induce me to separate it entirely from the genus, and place it near, if not in immediate proximity with, the Doritidæ.—*Edward Newman.*

Description of a Larva of Erebia Medea.—When full fed, which was on the 1st of July, 1870, it rested in a nearly straight position on the stalks or leaves of Agrostis canina (the brown bent grass), and it fed in confinement exclusively on the latter, but I cannot say whether this is the case in a state of nature: these leaves appear to possess a revolute margin, and hence to assume a somewhat tubular character: when annoyed the larva seemed to grasp more tightly with its anal claspers, and when compelled to relinquish its hold, it fell among the grass and assumed a somewhat crescentic form, the two extremities approaching, and in this position it remained a while perfectly motionless; after sufficient time had elapsed for the disappearance of the supposed enemy, it began to crawl, but all its movements were remarkably sedate or even lethargic. The head is rather narrower than the 2nd segment, into which it is partially received; it is scarcely at all divided on the crown, has a slightly convex face, and a rough surface resembling shagreen and composed of approximate warts, each of which emits a hair from its summit: the body is obese, decidedly thickest in the middle, and diminishing towards both extremities; the division into segments is not very manifest, and is rather concealed by a division of each into four sections, each of which consists of a transverse series of warts; thus the eye is attracted by the minor divisions, and the major divisions, or segments, properly so called, may readily escape notice; the body terminates in two short and blunt processes directed backwards; the legs and claspers form two approximate series under the belly, and are not perceptible from above, whether the larva is at rest or in motion. The general colour of both the head and body is wainscot-brown; the ocelli are black, and one on each side is unusually prominent, appearing almost pedunculate; the body has a narrow medio-dorsal stripe almost black, and the colour on each side of this is paler than the general ground colour, thus rendering the medio-dorsal stripe more conspicuous; the spiracles are intensely black; half-way between the spiracles and the medio-dorsal stripe is a side stripe, paler than the general ground colour, but bordered, especially below, by a darker margin which is broken up into elongate spots, but these are rather vague, and not very noticeable; the legs, claspers, and under surface are nearly of the same tint as the dorsal surface; the warts are of a very pale hue, almost white, each having in the centre a small black hair. It was full fed at midsummer. I am indebted to Mrs. Hutchinson, of Grantsfield, near Leominster, for the opportunity of describing this previously unknown larva.—*Edward Newman.*

Description of the Larva of Thecla Betulæ. — Rests in a flat position on the surface of a leaf, with its head, legs and claspers concealed, and it does not abandon this position readily: when compelled to do so, it falls about three inches and hangs by a thread. The head is almost globular, but slightly produced towards the mouth: it is scarcely half so wide as the 2nd segment; indeed the head may be said to be retractile within that segment: the body is shaped somewhat like a little boat turned keel upwards: the sides are dilated all round, even including the 2nd segment, the anterior margin of which projects beyond the head: the segments are deeply and distinctly divided, so much so as to give the back, when viewed sideways, a serrated appearance; the dilated sides and dorsal keel are each garnished with a fringe of stiff hairs; this fringe is double on the dorsal keel, but single on the lateral dilatation; on the former each hair is curved into the segment of a circle, and its end is directed backwards; on the margin each hair is also curved, but more slightly, and its end is directed downwards. The colour of the head is brown and its surface very glabrous; that of the body apple-green, with four narrow longitudinal whitish stripes, and two oblique lines of the same hue on each side of each segment; two of the longitudinal stripes are dorsal, they are distant on the 2nd and 3rd segments, gradually approach on the 4th and 5th segments, and thence run parallel to the 13th; the other stripes are lateral, and, running completely round the margin of all the segments of the body, unite on the 2nd and 13th segments; on the 2nd segment are two short pale longitudinal lines, side by side: the ventral surface, including the legs and claspers, is pale semi-transparent glaucous green, with a vague medio-ventral smoke-coloured stripe, probably due to the presence of food in the intestinal canal. These larvæ, which were kindly presented to me by Mr. Wm. J. Argent, were full fed on the 6th of June.—*Edward Newman.*

Description of the Larva of Lycæna Corydon. — Rests in a flat position on its food-plant, with the ventral surface appressed to the leaves, and its head, legs and claspers concealed; if annoyed it will fall to the ground, with both extremities slightly incurved, but the anterior extremity most so; the head is almost globular, but rather produced towards the mouth; it is about one-third as wide as the 2nd segment, and entirely retractile within that segment; the body is woodlouse-shaped, and in crawling, as in resting, both the head and legs are concealed; the divisions of the segments are decidedly marked; on the back is a double dorsal row of eight approximate humps, two on each segment from the 3rd to the 10th, both inclusive; the margin of the body is dilated all round, and this greatly contributes to the woodlouse appearance of the larva; the surface of the body is finely shagreened, and sprinkled over with black dots, each of which emits a short but rigid bristle; the surface of the larva in this respect closely resembles the glandular surface of the stems and leaves of some plants: these gland-like bristles are particularly observable on the dilated lateral margin: the legs and claspers form a double medio-ventral series. The colour of the head is dark brown, almost black, and highly glabrous; the body is dull opaque green, with six longitudinal series of oblong gamboge-yellow spots; two of these series are dorsal and approximate, and each series consists of eight such spots; the direction of the spots is rather oblique, and the anterior extremity of each is rather narrowed; these dorsal spots occupy the summits of the humps already described; another series of very similar yellow spots is marginal, occupying the lateral dilatation of each segment, and above this marginal series of yellow spots are the circular and rather conspicuous spiracles; in the two remaining series the yellow markings are linear and ventral, and equidistant between the claspers and dilated margin. It feeds on various papilionaceous plants, as the species of Lotus (bird's-foot trefoil), Anthyllis (kidney vetch), and Trifolium (trefoil). On or about the 13th of June these larvæ changed to pupæ, at the bottom of the glass wherein they were confined, without attaching themselves in the slightest manner to the food-plant or any other substance: the pupa is rounded and entirely without projecting points or angles; the extremities are remarkably obtuse: it is covered with short hairs, which however are not very apparent without the use of a lens: its colour is a pale, dingy, greenish brown, and the cases which envelope the thoracic segments and wings have a semi-transparent appearance. I am indebted to Mr. Klein for a liberal supply of this interesting larva. The perfect insects appeared on the 6th, 8th and 9th of July. —*Edward Newman.*

Contribution towards a Life-History of Lycæna Arion.—Having at length succeeded in obtaining eggs of P. Arion, I am pleased to be able to send you six of them—four on as many sprigs of thyme, and two on another piece. None of them had hatched when I put them into the box this evening, but they will be sure to do so in a day or two, Mr. Buckler having ascertained, from some eggs laid by a female I sent him (taken *in cop.*), that they hatched in about seven days, and these I now send you have been laid about that time, if not longer. Some others I had have hatched. If you find any egg-shells empty, you will be able to find the yellowish pink larva in the flower. I hope we shall be able to work out the larval life-history of this entomological puzzle this year. I followed a female specimen last Saturday to a fine patch of thyme, where I watched her for a quarter of an hour, and distinctly saw her lay several eggs. Some of these I afterwards took away, and others I left, marking the plant for future observations. I gathered a large number of likely looking pieces of thyme on the ground, and on examining them afterwards at home with a glass, found about twenty eggs. They seem to be generally laid singly on the largest heads of flowers, and those which are most pubescent seem to be preferred. Sometimes, however, I found two eggs on a head; and in one case no less than six.—*J. Merrin; 7, Shamrock Villas, Faulkner Street, Gloucester, July* 1, 1870.

Description of the Egg of Lycæna Arion.—Being from home when the box containing these treasures was so kindly despatched from Gloucester by Mr. Merrin, a delay of some days occurred before it reached my hands, and five out of the six eggs had hatched; the sixth was still perfect, and was forthwith submitted to examination: I found it to be a spheroid, much depressed at the north pole, and concave at the south pole, where it was very slightly attached to the hairs of the calyx of a flower of the thyme, on which it had been deposited by the female parent. The surface of the egg is reticulated, the network projecting, and thus communicating a cellular or honeycombed appearance to the egg; the cells are shallow, much more so than those of a honeycomb, and the surface rather more resembling that of a cow's stomach; the septa dividing the cells are extremely thin, and at every junction of septa is an elevated process almost spine-like, the array of which is very conspicuous when the egg is viewed in profile: the cells are of nearly equal size except at the north pole and in its immediate vicinity, where they suddenly decrease in size, and are, in fact, exceedingly small. The colour and texture of the egg much resemble white porcelain, with the slightest possible tint of green, excepting the circular space at the pole occupied by the smaller cells where the green tint is very decided and the limits of this darker colour are clearly defined. On the 4th of July a larva escaped from the egg-shell, and a considerable portion of shell was also absent, as though eaten by the late occupant; the remaining portion of the egg-shell was perfectly colourless and exhibited a still greater resemblance to fine porcelain. The extruded larva was colourless, but the intestinal canal, filled with an orange-coloured substance like the yelk of a duck's egg, was plainly perceptible. Each segment of the body emits a few scattered hairs: these seem particularly observable near the anal extremity.—*Edward Newman.*

Description of the Larva of Nyssia hispidaria.—On the 19th of May last I received from Mr. J. P. Barrett, of Peckham, a few larvæ, which were then rather more than half an inch in length, and were brown, with a double row of orange-coloured spots down the centre of the back. They grew very rapidly, being full fed on June 1st, when I took the following description:—Length about an inch and a half, of tolerable thickness in proportion to the length. Head narrower than the 2nd segment, retractile, flattened, and notched on the crown. Body irregular, thick on the anterior and posterior segments, thinner in the middle; segmental divisions conspicuous, the anterior part of each being narrower than the posterior; along the spiracles on each side, and on each segment, is a small pyramidal hump, those on the 6th segment being larger than the others; from each of these humps springs a single short hair. The usual tubercles distinct, black, those on the 12th segment almost taking the character of humps, and lighter in colour than the others; a single short stiff hair also springs from each of these. The skin has a wrinkled appearance. General colour of an almost uniform dark brown; head chocolate, variegated with yellowish brown. Dorsal line rather darker than the ground colour, and bordered on each side with a conspicuous interrupted line of rust-coloured marks; between the tubercles and spiracular humps are two faint rust-coloured lines; there is also a good deal of this rust-colour along the spiracles, which are pinkish encircled with black. A dull rust-coloured stripe (yellow on the 9th segment) extends along the centre of the belly. Legs chocolate and grayish white alternately. Feeds on oak, and turns to a pupa beneath the surface of the ground.—*Geo. T. Porritt; Huddersfield, June* 23, 1870.

Description of the Larva of Tæniocampa leucographa.—Rests in a nearly straight position on the leaves of Salix viminalis (osier), on the leaves of which it feeds: it has a limp and flaccid habit, and seems entirely without vigour. The head is as wide as the second segment, and very glabrous; it emits from different parts of its surface sparsely scattered hairs, all of which are directed forwards: the body is of uniform size throughout, and has a slight lateral skin-fold; I fail to find the usual trapezoidal dots on the back;

the anal claspers are long and spreading; the spiracles are oval, the first, and especially the ninth, being decidedly longer than the rest. The colour of the head is pale dull yellow-green, with a small white space, containing the black ocelli, on each cheek near the mouth: the body is pale sickly yellow-green, without gloss, and has an extremely narrow and scarcely perceptible white medio-dorsal stripe, and also a white side-stripe equally indistinct and almost equally inconspicuous in the region of the spiracles; this is most observable on the 2nd, 3rd and 4th segments, where it is slightly bordered with black; the legs and claspers are of the same colour as the body, and very transparent. I am indebted to Mrs. Hutchinson, of Grantsfield, Leominster, for the opportunity of describing this hitherto unknown larva.—*Edward Newman.*

Entomological Notes, Captures, &c.

Singular Variety of Vanessa Io and Pyrameis Atalanta.—I possess a specimen of Vanessa Io with eyes on the upper wings only, but the ground colour is of the usual tint. A specimen of Pyrameis Atalanta in my collection is still more curious: on the upper side the usual large white mark on the costa is entirely obliterated, and one of the two largest of the five spots near the hind margin is very much enlarged and diffused; the red band does not turn round towards the hind margin, but is almost straight, and much suffused with whitish yellow: on the under side the white marks are *very* much enlarged; the red band is double the usual size, and of a lovely pinkish colour. I shall be glad to send these varieties to you for figuring and description, if you think them of sufficient interest.—*Frederick Enock; 75 Ryland Road, Edgbaston, Birmingham June* 22, 1870.

[I am exceedingly obliged for this kind offer, but cannot accept it, as my work is now past both the species mentioned. —*E. Newman.*]

Rhodophea formosella.—This insect, for which so few localities are given, seems to be common in one hedge in this neighbourhood. I captured a few good specimens last month, and afterwards a great many worn ones.—*J. P. Barrett;* 33, *Radnor Street, Peckham, London, S.E.*

On Breeding Acherontia Atropos. — Feeling satisfied that a short paper on finding and rearing the death's-head hawk-moth would be of interest to the young readers of the 'Entomologist,' I take the liberty of recording the experience we have had in this locality with them. In the summer of 1868 myself and friend were sent out by our Society to collect for a week at Blackpool, on the west coast. We captured during that week one hundred and twenty larvæ of Acherontia Atropos, eleven of them being of that variety in which the ground colour is olive-brown, with the lateral stripes darker. Out of this number we only reared forty-five perfect insects, one of which was a striking variety—a very large female, having only one black band instead of two on the hind wings, the inner band being entirely absent. Those that never came to perfection died just previous to emerging from the chrysalis, having developed all their parts except their wings not being expanded. When they kept dying under these conditions, we removed them from the soil, put some broom into a box, covered it with flannel, laid the pupæ on the top, and put them in an airy and rather warm situation, and by this method succeeded in rearing the remainder. Feeling satisfied that we could profit by our experience, we determined to try them again the first opportunity. During August, 1869, our friend Mr. John Taylor went over to Blackpool, and took twenty-four larvæ, three of them being varieties of an olive-brown colour instead of yellow. On the 28th of September all had made up, except four that died during feeding. On the 26th of October they were removed from the soil, placed on flannel laid over some broom, and kept rather warm. On the 28th of April they began to make their appearance, and by the 28th of May there were seventeen very fine perfect insects, fourteen females and three males. Those larvæ that make up by the end of August generally come out during October, but a great portion of them are males; those that stay in the chrysalis state during the winter, and come out in May, are generally females. We have always found them feeding on the potato foliage, generally on those that are planted early, such as radicals, kidneys, &c.; we have never yet found any feeding on flukes: they are best found between 4 and 9 o'clock in the morning, as they are more exposed then than at midday. It is a larva easy to feed in confinement, and those young entomologists who have not had the pleasure of taking this beautiful larva have a pleasure in store: they are very easy to find on sandy ground by their droppings.—*John Thorpe; Church Street, Middleton, near Manchester.*

Deilephila lineata at Birmingham and Bromsgrove.—I am happy to inform you I have become possessed of a pair of Deilephila lineata taken in this district; the first, a splendid male, was taken by a bricklayer's lad, not a stone's throw from this spot, on the 24th of May, at 5 p.m.; the second, a female, was caught at Bromsgrove, on the 31st of May, by a labourer, who saw it while cutting cabbages: he took it to Mr. Franklin, the taxidermist, who presented it to me: this second specimen laid fifteen eggs, but they all dried up, I presume from not being fertilized.—*F. Enock; 75, Ryland Road, Edgbaston, Birmingham, June* 22, 1870.

Chœrocampa Nerii at Birmingham.—When Mr. Franklin gave me the female Deilephila lineata which I have alluded to above, he showed me a specimen of Chœrocampa Nerii which a little girl had brought to him, and said her brother had caught it in a garden at Birmingham: it is much injured, has lost both its antennæ, and has never been pinned: the specimen is a male, and the body is much curved, as though it had died of starvation.—*Id.*

Fifty Saturnia Carpini attracted by one Female in Two Days.—Friday, April 22nd, I obtained two females of S. Carpini, which had emerged that morning; but, as a male had come out in the same box, I was uncertain whether both or only one was a virgin, and therefore I determined to take both on the following day to Tilgate Forest. I arranged with a friend who had a virgin female to start by the 8·55 train; but circumstances prevented our going. On Monday, April 25th, having occasion to go to Eastbourne, I took the two females with me, and, on the return journey, got out at Polegate and walked in the direction of Hailsham. About 3 p.m., while crossing a stile at the end of a wooded lane, a male fluttered round me for a few seconds and then made off. A few minutes later, and about a quarter of a mile distant, another came up and was secured. A few minutes later, while talking to a woodcutter in a lately cleared coppice, another came up and was taken.

While explaining to the woodman the cause of attraction, two males came up, and, at intervals, seven others. Of these latter I caught six, making in all nine out of the eleven I saw. I found, on inquiry, that there was no heather within a mile, but that sallows and willows were in the neighbourhood. One male not simply flew at, but got into a leather bag containing the females, which were in a muslin-covered box. The woodcutter was very much astonished, and expressed it in such words as these: "I have been man and boy about the woods and fields all my life and never heard tell of such a thing before; if any one had told me I wouldn't have believed it, but now I have seen it I will. Can't you tell me of summat as 'ull draw the fish same way?" Nothing came up after four o'clock, though I walked about the lanes till nearly seven o'clock. The same day that I was so successful, my friend went to Balcombe with a female, and walked Tilgate Forest through and through, from ten till four o'clock, without seeing a single male. This, as will be seen, was very remarkable. Tuesday, 26th.—Left Brighton by the 11·30 train for Balcombe, taking the two females with me, not knowing at the time of my friend's want of success. We got into the Forest about one, and walked about for nearly two hours without seeing a specimen of S. Carpini. My youngster, boy-like, began to get impatient, when, a little before three, one male came up against the wind, which was blowing strongly from the S.W. After this, for about an hour and a quarter, we were busily engaged in taking the males, which came up singly, in twos and threes. We captured thirty-four specimens, nearly the whole of which were in good condition. Some few, in trying to reach the box containing the females, damaged or slit their wings among the heather, and five, which settled about the box, we failed to take, simply from the inability of securing more than two or three at a time. At one time we covered two with our nets, while we bottled a third. Not counting those which flew around and beyond without settling, we counted thirty-nine. These, with the eleven of the day before, made up the astonishing number of fifty in the two days. I know that even larger numbers of some species have been drawn up; but we had been told, on the authority of several entomologists, that fourteen was a very good day's work;

moreover, that the attractive power of the female passed off after the second day. This we did not credit, as we had proved the contrary with the Oak Eggar.—*T. W. Wonfor; Brighton.*

Singular Variety of Chœrocampa Elpenor.—I have been fortunate enough to breed a singular variety of Chœrocampa Elpenor. Instead of being of the usual olive-green and pink, it is of a uniform gray colour, with just a little olive-green on the body. Mr. Garratt, of this town, has seen it, and thinks it a very remarkable specimen.—*Edward F. Bishopp; 62, Berners Street, Ipswich.*

Acronycta leporina at Ipswich.—On the 4th of June I took a beautiful specimen of Acronycta leporina at rest on a small birch tree in a wood near here.—*Id.*

The English Humming-bird Hawk-moth.—I had gathered a specimen of that scarce plant in Devon, the butterfly orchis (Habenaria bifolia), which by the way has a delicious perfume, and whilst seated on a rock, with the flower in my hand and close to my face, a humming-bird moth (Macroglossa Stellatarum) came, and, hovering before the plant, introduced its proboscis into every flower, beginning at the bottom and ascending to the top in a spiral direction, causing a most extraordinary vibration through my fingers and down the wrist during the operation. Notwithstanding I held the plant so close to my face, in order to examine every action of the moth, that it must have actually felt my breath, and kept constantly calling to a friend who was fishing close by to come and witness the interesting sight, yet strange to say the insect did not appear in the least alarmed, but kept on for many minutes, feasting until I suppose all the sweets were extracted.—*John Gatcombe; Stonehouse, Plymouth.*

Ino Globulariæ in Wales.—Some time last summer I took a specimen of Ino Globulariæ near Dolgelly, in North Wales. —*W. Sydney de Mattos; Blackheath Park, June* 29, 1870.

Fly-parasite on Chelonia caja.—I send you some pupæ and imagos of a fly which were taken from a shrivelled larva-skin of Chelonia caja. Is not this large fly a very unusual parasite on our old friend the "miller's dog."—*Joseph Merrin; 7, Shamrock Villas, Faulkner Street, Gloucester, July* 1, 1870.

[The fly is a Tachina, but in the very imperfect state of our knowledge of this genus I will make no attempt to name the species. The fact of its parasitism on Arctia caja was recorded by me in 'London's Magazine of Natural History,' in 1824; and I there also mention that it had a parasite of its own, a hyper-parasite as it might be called, one of the Chalcidites.—*E. Newman*.]

Stauropus Fagi, &c., at Darenth Wood.—I was fortunate in capturing three fine specimens (two females and one male), in the space of two hours, at rest on the trunks of trees in Darenth Wood: this is really lobster-catching. I also beat out a beautiful specimen of Eupithecia succenturiata. Sugared trees were most prolific night sport, producing common Noctuæ in abundance; in fact it was a sight I never witnessed since I have been entomologizing, multitudes of common species causing a regular fight for the sugar, in which the weak or intoxicated were soon driven off by fresh comers. The best species taken were Aplecta herbida, A. tincta, and Neuria Saponariæ.—*F. O. Standish; 2, Alfred Cottages, Warner Road, Camberwell, S.E., June* 19, 1870.

Early Appearance of Platypteryx lacertula.—On the 30th of April, 1870, I captured a specimen of this insect at Somerhill Park, near Tonbridge, at about 7 o'clock in the evening: am I right in concluding that this is a hybernated specimen? I cannot think otherwise, since I captured the perfect insect when just emerged, and in tolerable plenty, towards the end of May. The specimen mentioned above was flying when I captured it; it is of a somewhat darker colour than usual, and but very slightly worn: I shall feel myself under a sincere obligation to any of your readers who can explain.—*G. H. Raynor; Bordyke House, Tonbridge, June* 25, 1870.

Notodonta ziczac with three Wings.—Would you or your friend the Rev. Joseph Greene care to see a specimen of Notodonta ziczac (reared) which only developed three wings? There is not a vestige of the under wing on the left side. It is of a similar kind to those already mentioned in the pages of the 'Entomologist.'—*F. I. Battersby; Cromlyn, Rathoven, Co. Westmeath, July* 8, 1870.

Cymatophora ridens bred.—A female, taken at rest in April, 1869, laid a number of eggs, from which I have reared a fine series this season.—*F. O. Standish; 2, Alfred Cottages, Warner Road, Camberwell.*

Immense Numbers of Triphæna fimbria.—In April last I observed an immense number of larvæ; I found a dozen on a very small mountain ash, and swarms crawling up the trunks of oaks, &c. I thought they must be Fimbria, but could scarcely believe it on account of the numbers; I have, however, succeeded in breeding some, and find them to be that species; an old collector of fifty years' experience says he has only met with it occasionally, but this year at Sutton Park they were by far the most numerous of all Noctua larva. —*Frederick Enock; 75, Ryland Road, Edgbaston, Birmingham, June* 22, 1870.

Diacanthœcia Cucubali and Hecatera serena in Westmeath.—A visitor in this neighbourhood captured a specimen each of D. Cucubali and H. serena last week; I saw both specimens: these moths had not previously been taken in Westmeath.—*F. I. Battersby; Cromlyn, Rathoven, Co. Westmeath.*

Coleophora vibicella.—I have discovered the larvæ of this beautiful species in abundance. The perfect insect is now appearing.—*F. O. Standish; 2, Alfred Cottages, Warner Road, Camberwell, S.E.*

Sawfly Larva feeding within the Stem of a Fern.—Year after year I have endeavoured to make out the cause of an extraordinary mass of froth-like whip-syllabub which appears here on the leaf-stalks of the lady fern; and I have so far succeeded as to ascertain that it is caused by the larva of a sawfly which feeds in the interior of the stalk, making one or more lateral apertures, through which this vast quantity of froth issues. Having removed the froth, which is excessively sticky, adhering to the finger as tenaciously as marmalade or other saccharine esculents, I found the stipes discoloured, and of a dark brown colour instead of a vivid green. On opening the stalks with a penknife, I found in each a single sawfly larva, of which the following is a description. I ought to say that on being ejected it threw itself on its back, turned over and over, and wriggled on the paper with much vigour and activity. Head exserted, nearly globular, but flattened on the face, transparent pale brown, with black ocelli; the 12th segment has four spine-like processes, two on each side and directed outwards; the 13th segment is somewhat concave dorsally, its edges are dilated and divided into three lobes, the middle one of which is notched; between each two segments is a transverse skinfold, almost amounting to an intervening segment. The appearance of the larva is strictly maggot-like; the colour transparent white, with a reddish brown median shade, which is probably due to the presence of food in the intestinal canal: it has six transparent legs, but no claspers. The mass of snow-white froth exuding from the stalk of the fern is frequently an inch and a half in length, and as thick as one's finger.—*E. Newman.*

Parasite on Prawns. — In a dish of prawns I have just found several with a kind of tumour at the side of the head, similar to those which I herewith enclose; and, as I am much surprised to find such an appearance or disease, I should like to learn from you whether it is natural to them; and, if not, whether there would be harm likely to arise from eating them.—*A. F.*

[The name of this curious parasite is Bopyrus Squillarum: it is common to all the species of prawns (Palæmon) and shrimps (Crangon), and is sometimes so abundant on the shrimp that it is next to impossible to find a single individual not thus infested. In eating shrimps it is usual to take off the carapace or hard anterior case, and the Bopyrus is then left adhering to the body, and, rarely being observed, is eaten without hesitation: it is perfectly innocuous, or the large quantity thus consumed must occasionally have produced ill effects on the consumer, which certainly is not the case.—*E. Newman.*]

Captures at Bury St. Edmunds. — On the 8th of June five other entomologists and myself took, in four hours, seventy A. sulphuralis and forty-two L. nivearia, also three H. dipsaceus, three H. ahenella, and one H. unca.— *W. H. Cole; School Hall, Bury St. Edmunds, June* 13, 1870.

Breeze or Gadfly of the Ox.—Enclosed is an insect which was found feeding under the skin of a cow's back; the place was inflamed for several inches round. Could you give the name and habits of it, and also state whether it is injurious or beneficial to cattle? — *John Thorpe; Middleton, near Manchester, May* 31, 1870.

[It is the larva of the gadfly of the ox (Œstrus Bovis): its habit of persecuting cattle, for the purpose of depositing eggs on their backs, has been known in all ages, and the effect on the terrified cattle is well described by the poet Virgil. The young larva, immediately on emerging from the egg, penetrates the hide of the ox, and inflammation speedily follows: matter is produced, and on this the larva subsists underneath the skin: when full fed the larva gnaws its way out and falls to the ground, where it changes to a chrysalis, and soon afterwards to a perfect insect. Its presence under the skin is made known by lumps in the vicinity of the back-bone, varying in size from a walnut to a small marble: on its escape it leaves a round hole, and these are sometimes so numerous as greatly to depreciate the hides.—*E. Newman.*]

Agrotis Ripæ taken inland. — In your valuable work on 'British Moths' you state your belief that the sand-dart moth (Agrotis Ripæ) is found only near the sea. Having this morning captured a specimen in my own garden, I thought you might be interested in hearing of it, as we are quite seven miles from the sea, although near a tidal river.—*J. C. Nosworthy; High Street, Barnstaple, June 7.*

Death of Mr. Haliday.—It is with extreme sorrow that I have to announce the loss to Science of Alexander Henry Haliday, who died at Lucca on the 13th of the present July. He was an original contributor to the 'Entomological Magazine,' every volume of which journal is enriched by his valuable communications. Mr. Haliday has for years resided almost exclusively on the Continent, and his labours have been but little known to the entomologists whom we now see around us; but his profound papers on Diptera, and on the minute ichneumonideous parasites, have placed him in the very first rank of entomological authors.—*E. N.*

Death of M. Lacordaire. — Another distinguished author is taken from our midst: M. Jean-Théodore Lacordaire, a name familiar to every living entomologist, died at Liége on the 18th of July, 1870, aged sixty-nine years and four months: he was Professor of Zoology and Anatomy in the University of Liége, an officer of the order of Leopold; a member of the Belgian Academy of Sciences, and of the Entomological Societies of France, London, Stettin, Berlin, the Netherlands, Brussels, Russia, &c., &c.; but these titles will add nothing to the celebrity he has acquired by his indefatigable labours in the cause of his favourite science.—*Id.*

THE ENTOMOLOGIST.

No. 82.] SEPTEMBER, MDCCCLXX. [Price 6d.

A List of the Lepidoptera collected by J. K. Lord, Esq., *in Egypt, along the African Shore of the Red Sea, and in Arabia; with Descriptions of the Species new to Science, by* F. Walker, Esq., F.L.S., G.S., &c.

(Continued from p. 134.)

(For localities in which insects were collected by Mr. Lord, see page 48.)

Gen. Scopula, *Schrank.*

41. *Scopula variabilis. Female.*—Yellowish white. Head with a blackish frontal tuft. Palpi compressed, lanceolate, fringed, extending rather beyond the head, blackish on the outer side; third joint lanceolate. Antennæ and legs smooth. Abdomen extending a little beyond the hind wings. Fore wings with a broad deeply undulating blackish stripe, which commences on the costa at the base and joins the interior border, and ends on the costa near the tip; a blackish dot in the disk. Hind wings with some blackish speckles, which form an oblique slight abbreviated band. Wings beneath with an oblique postmedial blackish band which is broadest in the fore wings. *Var. β.*—Stripe of the fore wings much dilated, and occupying the whole surface except a space along the exterior border, and another along the basal part of the interior border. Length of the body 3 lines; expansion of the fore wings 8½ lines. Hor Tamanib. Harkeko.

42. *Scopula flexifera. Male.* Pale cinereous. Palpi porrect, lanceolate, black above, extending somewhat beyond the head; third joint lanceolate, wholly black. Abdomen extending somewhat beyond the hind wings; apical tuft small. Legs smooth, slender. Fore wings thickly speckled with brown; a broad blackish curved white-bordered stripe extending from the base of the costa to three-fourths of the length of the latter; two black spots in the disk in front of the stripe. Hind wings with a slender blackish postmedial

band. Length of the body 4 lines; expansion of the fore wings 8 lines. Harkeko.

43. *Scopula serpentina*. *Male*.—Pale cinereous, rather stout. Palpi porrect, slender, rather short, slightly fringed, extending a little beyond the head; third joint very minute. Antennæ and legs smooth. Abdomen extending rather beyond the hind wings. Fore wings clouded with brown, speckled with black, adorned with two white lines; first line antemedial, transverse, undulating; second deeply serpentine, extending from nearly two-thirds of the length of the interior border to five-sixths of the length of the costa. Length of the body 3 lines; expansion of the fore wings 8 lines. Hor Tamanib.

44. *Scopula effrenata*. *Female*.—Mouse-colour, pale cinereous. Palpi porrect, stout, hardly fringed, speckled with black, extending rather beyond the head; third joint elongate-conical, not more than one-fourth of the length of the second. Antennæ and legs smooth. Abdomen extending rather beyond the hind wings. Fore wings whitish along the costa; exterior border slightly rounded and oblique. Hind wings whitish; fringe long. Length of the body 4½ lines; expansion of the fore wings 10 lines. Harkeko.

45. *Scopula includens*. *Female*.—White. Head above and fore tegulæ of the thorax tinged with luteous. Palpi luteous, porrect, compressed, slightly curved, with a short fringe on the under side, longer than the breadth of the head; third joint lanceolate, about half the length of the second. Antennæ and legs smooth. Abdomen hardly extending beyond the hind wings. Fore wings with ochraceous streaks, and with a purplish costal streak in the interior half; exterior half dark ochraceous, partly tinged with purple, and including a white subcostal patch, which is tinged with ochraceous. Hind wings gilded white, with a broad gilded cinereous marginal band. Wings beneath like the upper side of the hind wings. Length of the body 3 lines; expansion of the fore wings 9 lines. Hor Tamanib.

46. *Scopula inscita*. *Female*. — Mouse-colour, slender. Whitish beneath. Palpi with a short fringe, hardly ascending, extending much beyond the hind wings; third joint lanceolate, full half the length of the second. Antennæ and legs smooth, slender. Fore wings slightly acute, rather

narrow; exterior border rounded, rather oblique. Hind wings whitish. Length of the body 4? lines; expansion of the fore wings 10 lines. Hor Tamanib.

47. *Scopula submarginalis.* *Female.*—Whitish. Palpi porrect, nearly linear, slightly fringed, extending rather beyond the head; third joint very minute. Antennæ and legs smooth. Fore wings with black speckles, with a black costa, and with a very broad black marginal band, which includes a whitish slightly undulating line. Hind wings with two narrow blackish bands, one submarginal, the other marginal. Wings beneath like the upper side of the hind wings. Length of the body 3½ lines; expansion of the fore wings 9 lines. Harkeko.

Fam. SCOPARIDÆ.—Gen. STENOPTERYX, *Guen.*

48. *Stenopteryx hybridalis.* Nomophila hybridalis, *Hubn. Verz. Schm.* 368. Wâdy Nash. Wâdy Ferran. Mount Sinai. Inhabits Europe, America, Africa and Asia.

Fam. GEOMETRIDÆ.—Gen. EUCROSTIS, *Hubn.*

49. *Eucrostis indigenaria.* Geometra indigenaria, *Bork. Eur. Schm.* v. 485. Hor Tamanib. Inhabits S. Europe.

Fam. MACARIDÆ.—Gen. MACARIA, *Curt.*

50. *Macaria æstimaria.* Pharmacis æstimaria, *Hubn. Verz. Schm.* 298. Hor Tamanib. Inhabits S. Europe.

Fam. FIDONIDÆ.—Gen. TEPHRINA, *Guen.*

51. *Tephrina destituta.* *Female.*—Cinereous. Palpi porrect, slightly curved, extending rather beyond the head; second joint thickly fringed; third conical, minute. Abdomen not extending beyond the hind wings. Wings with fawn-coloured speckles, with a brown dot in the disk, and with a broad fawn-coloured border; marginal points black; under side whitish, also bordered. Length of the body 5 lines; expansion of the fore wings 14 lines. Cairo.

Gen. STERRHA, *Hubn.*

52. *Sterrha sacraria.* Geometra sacraria, *Linn. Syst. Nat.* ii. 863. Hor Tamanib. Harkeko. Inhabits Europe, Africa, and Hindostan.

53. *Sterrha marginata.* *Female.*—Whitish. Head above pale fawn-colour. Palpi pale fawn-colour, stout, slightly

decumbent, not extending beyond the head; third joint extremely small. Antennæ and legs smooth; spurs of the latter short. Wings elongate. Fore wings acute; exterior border very oblique; fringe purple; under side tinged with purple along the costa and along the fore part of the exterior border, and with a short purple line which extends obliquely from the tip. Hind wings tinged with purple on the under side, where there are two longitudinal purple lines. Length of the body 3½ lines; expansion of the fore wings 12 lines. Harkeko.

Gen. ASPILATES, *Treit.*

54. *Aspilates curvifera.* *Male.*—Pale cinereous, slender. Palpi curved, slightly decumbent; third joint conical, minute, acute. Antennæ blackish, broadly pectinated. Abdomen hardly extending beyond the hind wings. Legs smooth, slender. Fore wings mostly clouded with brown; a darker brown hardly undulating postmedial band, its hind part bordered on the inner side by a curved blackish streak; two blackish streaks nearer the base, and extending from the disk to the interior border; a whitish band on the inner side of the brown band, and between the second and third black streaks; marginal points black. Hind wings mostly pale brown between the exterior border and a darker brown postmedial transverse line. Wings beneath with a submarginal cinereous band. Length of the body 5 lines; expansion of the fore wings 13 lines. Cairo.

Fam. LARENTIDÆ.—Gen. COREMIA, *Guen.*

55. *Coremia oppressa.* *Male.*—Cinereous, thickly speckled with ferruginous-brown, more cinereous beneath. Palpi porrect, slender, fringed, extending rather beyond the head; third joint lanceolate, nearly as long as the second. Antennæ pectinated. Abdomen a little shorter than the interior border of the hind wings; hind borders of the segments cinereous; apical tuft short, thick. Legs smooth, rather stout. Wings with two broad dark brown zigzag transverse lines, which are very indistinct in the hind wings; first line antemedial; second postmedial; a submarginal cinereous zigzag transverse line; under side with less distinct markings. Length of the body 3 lines; expansion of the fore wings 8½ lines. Hor Tamanib.

Fam. PHYCIDÆ.—Gen. NEPHOPTERYX, *Hubn.*

56. *Nephopteryx? spurcata. Female.*—Mouse-colour, cinereous beneath. Head white. Palpi white, porrect, speckled with black, extending rather beyond the head; second joint with a black band at the base; third lanceolate, mostly black, more than half the length of the second. Antennæ and legs smooth. Abdomen cinereous, extending much beyond the hind wings. Fore wings rather narrow, with two black points in a line in the disk. Hind wings pale cinereous, semihyaline; marginal line brown. Length of the body 4½ lines; expansion of the fore wings 10 lines. Harkeko.

57. *Nephopteryx? priscella. Male.*—Hoary, slender, whitish beneath. Palpi smooth, obliquely ascending, not rising higher than the vertex; third joint conical, not more than one-sixth of the length of the second. Antennæ stout, smooth. Abdomen gilded cinereous, extending a little beyond the hind wings; apical tuft small. Legs slender, smooth. Fore wings narrow, slightly acute, exterior border rounded, very oblique. Hind wings cinereous. Length of the body 4½ lines; expansion of the fore wings 11 lines. Cairo.

Fam. CRAMBIDÆ.—Gen. CRAMBUS, *Fabr.*

58. *Crambus perspicuus. Male.*—Cinereous, slender, white beneath. Head, thorax and fore wings gilded. Palpi smooth, slender, extending rather beyond the head; third joint conical, acute, not more than one-fourth of the length of the second. Antennæ and legs smooth, slender. Abdomen extending a little beyond the hind wings; apical tuft elongate. Fore wings with a row of deep black dots extending along the hinder part of the exterior border, and bordered on the inner side by a whitish line. Hind wings semihyaline; fringe white. Length of the body 4—5 lines; of the wings 10—12 lines. Hor Tamanib. Cairo. Mount Sinai.

Gen. JARTHEZA, *Walk.*

59. *Jartheza chrysographella.* Crambus chrysographellus, *Kollar.* Hor Tamanib. Inhabits S. Africa, Hindostan, Ceylon, and China.

Tribe TINEITES.

The specimens of the few species of this tribe are too much injured for description.

FRANCIS WALKER.

Extracts from Notes on Locusts. By F. Walker, Esq.

The observations of Lallemant show that the locust, Acridium peregrinum, inhabits the fertile region in the interior of Africa; that the swarms cross the great desert, or the Sahara, by means of the favourable influence of the Sirocco; that this wind is prevalent for a day or two before they come to Algeria; that they often fly at a great height, and are thus enabled to cross the Atlas range; that the time of their coming varies from April to June; that their coming is not annual, but irregular; that large numbers are sometimes carried by the wind into the sea, where they have been observed to form a yellow line of sixty miles in length; that the number on land is not thereby apparently diminished; that each female deposits at least eighty-five eggs, which are hatched in a month; that this second generation is sometimes suppressed by turning over the soil, and thus exposing the eggs to the destroying heat of the sun, and by the tough and dry vegetation in the later time of the year, which food is not suited to the softness of the jaws of the young locusts; that the latter have nevertheless sometimes thriven, as may be supposed by the fact that a person has destroyed about 9,100,000 individuals of the second generation on his land at one time.

The most generally believed opinion, with regard to Acridium peregrinum and Pachytylus migratorius, is that they come from the Soudan, the equatorial region of Africa. The summer swarms, hatched in the sandy districts, travel, half to the South, half to the North, in search of more abundant food than that in the desert. The life of these locusts beyond the egg state does not last beyond fifty days or thereabouts, and those that leave the Soudan do not reach Algeria, but oviposit and perish in transit thither; and the swarms of the next generation possess themselves of Algeria, and lay eggs there: during six years these eggs did not hatch, but in 1866 the eggs then laid were hatched, and the ensuing larvæ committed greater ravages than the adults, and were full-grown towards July. In August all traces of locusts have generally disappeared. A cloud of locusts arrived at Algiers on the 6th of January, 1867, a season of the year in which they had never been previously seen.

They had a red tint, and thereby differed from the summer visitors, but this difference is said to be owing to the more advanced life of the latter. The winter swarms were soon destroyed by the rains. This note probably refers only to A. peregrinum, though P. migratorius is included in it, and P. cinerascens is perhaps often supposed to be P. migratorius in the observations on the latter.

The notes by Olivier, of the arrival of these locusts in Syria from Arabia and from South Persia, coincide with the above account of their appearance in Algeria. They seem also to come into Egypt from Arabia, not from the interior of Africa, as is the case with those in Algeria.

In Wood's 'Bible Animals,' A. peregrinum and P. migratorius are both mentioned as devastating Syria and Egypt, and there is no indication that one is more destructive than the other. Suquet states that he lived for eighteen years at Beyrout, and did not see the locust (A. peregrinum) till March 30, 1865; and that they had not been seen in Syria for twenty-five years.

Fischer, in his description of P. cinerascens, has the following note, and it may serve as an introduction to the observations of Köppen :—

"Notæ utique, quibus a P. migratorio discernitur, non tanti momenti sunt, ut mirarer vel oppugnarem, si quis argumentis ex ingenti speciminum examinatorum numero, vel a copulâ ambarum specierum deductis nisus aliquando contenderet, alteram esse alterius varietatem, sub quibusdam victus rationibus procreatum et propagatum."

Köppen has studied the history of Pachytylus migratorius, the migratory locust of S. Russia, more extensively and minutely than any other author. His researches are published in the Horæ Soc. Ent. Ross. iii. 89—246, and there is an abstract of them in the 'Zoological Record' (1867, 459). He maintains that P. migratorius and P. cinerascens are varieties of one species, and that Œdipoda tatarica, *Motsch.*, is identical with P. cinerascens. He states that the northern limit of the migratory or nomadic life of this locust is a line passing from Spain through the South of France, Switzerland, Pomerania, S. Russia and S. Siberia, to the North of China. No large swarms occur in Tartary.

Charpentier also believed that P. migratorius and P. cinerascens are varieties of one species.

F. WALKER.

Life-history of Vanessa Polychloros.—In the spring of the year both sexes of this butterfly may be seen toying with each other in our lanes, and occasionally, but less commonly, on the outskirts of woods: impregnation takes places at this season, generally in the month of May, but sometimes as early as April: the ovary of the female is now distended, and the eggs are prepared to receive the fecundating element, but in these and other insects the eggs attain their full size and characters prior to fecundation: in the autumn, on the contrary, in the very few females I have been able to obtain, there is no distinct appearance of eggs in the ovary; and neither males nor females exhibit indications of the sexual impulse. The eggs are laid in May, on the twigs of various trees; the wild and cultivated cherry (Prunus Cerasus, the Cerisier and Griothier of the French) seems the tree chiefly selected in France, and whole rows of these trees may occasionally be seen in July entirely stripped of their leaves by the caterpillars of this species: in England the trees selected are Pyrus Aria (white-beam tree, whip-crop, or white rice), Populus tremula (aspen), Salix caprea (sallow), Salix viminalis and S. vitellina (osiers), and more commonly the different species or varieties of Ulmus (elm). There is something extremely interesting in the manner of oviposition: the female deposits the eggs in crowded patches, often as many as three hundred, and sometimes even four hundred, in number, on the twigs or small branches of the food-plant; they are distributed all round the twig, completely enclosing it, and forming what, in the instance of the lackey moth, has been called an "armlet;" the eggs, however, although closely approximate, are not imbedded in glue, like those of the lackey; each egg seems to possess a distinct operculum, which is forced out of its place and probably eaten by the young larva on its natal day: each egg has also several, usually eight, longitudinal keels or ridges, but this number is not constant, for I have some with only seven and others with nine of these keels. The larvæ are hatched in a fortnight, and are full-grown about midsummer: at this period they rest in a straight position on the food-plant, and are readily shaken off, and fall to the ground; they have rather a limp and flaccid character, and exhibit scarcely any disposition to assume the ring form. The head is exserted, being manifestly wider than the 2nd segment; its position is prone, its crown slightly notched, and the division slightly elevated: the entire surface of the head is scabrous, this character arising from the presence of numerous small warts and elongated papillæ, the length of which is about equal to three times the breadth; the warts and papillæ are intermixed, but the latter predominate on the crown, the former on the cheeks; from the summit of each wart or papilla emerges a slender and slightly bent hair: the body is almost uniformly cylindrical, and is armed with sharp spines on every segment except the 2nd; these spines constitute seven longitudinal series, the first of which is medio-dorsal, and consists of eight spines, one on each segment from the 5th to the 12th, both inclusive; each spine in this medio-dorsal series, at about half its length, emits a single branch which is directed forwards in a slanting direction: the first lateral series consists of ten spines; these commence with the 3rd and end with the 12th segment; each spine in this series has at least three lateral branches, all of which are nearly equidistant between the base and tip; the second lateral series is composed of rather smaller spines, and each of these is branched much in the same way as those of the preceding series; and again, still below this is a third lateral series of eight smaller spines, which begin on the 5th and end with the 12th segment; these are also branched like those already described; each spine in the second series stands a little in advance of the corresponding spine in the first lateral series, and rather more so in advance of that in the third lateral series; the 13th segment has four branched spines, forming a quadrangle, and all of them slightly leaning backwards; the ventral surface is without spines, and is deeply wrinkled at the interstices of the segments, but not between each pair of legs or claspers; about each leg and clasper are a number of longish deflected hairs, and these form a lateral fringe not particularly distinct. The head is black, its shorter hairs being also black, but the longer ones white; the body is black, with very obscure stripes of a paler tint, caused by the presence of numerous paler warts, each of which emits a pale hair; the spines are ochreous as well as their branches, excepting the extreme tips, which are black; the yellowish spines give the larva the appearance of having seven yellowish stripes. I am indebted to Mr. Lewes, who, seeing my advertisement in the 'Entomologist,' kindly supplied me with specimens to describe.—*Edward Newman.*

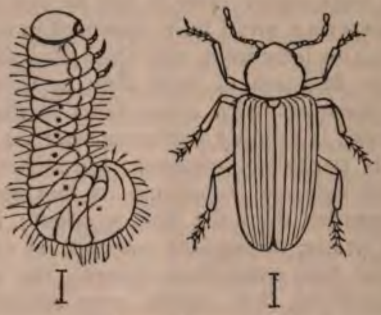
Description of the Larva of Eupithecia consignata.—I am sure so excellent an entomologist as Mr. Crewe will pardon my indulging my old and ineradicable propensity to describe from Nature, even though the same species may have passed under his own eye, and have received literary immortality from his own pen. To one who imposes on himself any given task, as I have done, there will ever be a satisfaction in accomplishing that task in his own way: there is also a charm to prosaic minds—and mine is pre-eminently a prosaic mind—in uniformity. Thus, although I fully admit that it is perfectly in order to commence numbering the segments of an insect *after* the head, thus calling the first segment of the body the *first segment*, and to call the claspers *legs*, or *false legs*, or *prolegs*, or *scaly legs*, or *membranous legs*, yet having for very many years adopted a nomenclature of my own, I prefer casting my new descriptions in my old mould, and establishing a semblance of uniformity amongst the works of my own hands. This must be my excuse for attempting a second description of the larva of Eupithecia consignata. It rests in a straight position on the midrib, under side, or edge of an apple-leaf: the head is wider than the 2nd segment, prone, the crown divided, and the face convex, it emits numerous short hairs or bristles: the body is slender, its 2nd segment wider than those which follow, and embracing the back part of the head; there is a rather conspicuous but slender lateral skinfold. The colour of the head is dull green, of the body bright apple-green, with a medio-dorsal series of purplish or red-brown blotches; in one specimen before me, this series is continuous or united by slender portions of the same colour; in others it is interrupted by considerable portions of the green ground—

colour, and this divided into distinctly separate blotches; the first and last of these blotches are elongate and irregular; those which intervene, five in number, are shaped somewhat like the flower of a Fuchsia, the cylindrical tube, the dilated calyx and corolla and the elongate drooping stamens and pistil being fairly represented; beneath the lateral skinfold and almost concealed by it, is a series of similarly coloured markings, the most conspicuous of which is the last; it extends the entire length of the 12th and 13th segments. I am indebted for a supply of these rare larvæ to Mrs. Hutchinson, of Grantsfield, Leominster.—*Edward Newman.*

Description of the Larva of Xylina semibrunnea.—It rests on the leaves or leaf-stalks of Fraxinus excelsior (ash), on which it feeds, in a nearly straight position, and adheres most tenaciously with its claspers, resisting every attempt to remove it: I have never seen it fall to the ground, feign death, or roll in a ring, and I have observed in other instances of larvæ feeding on lofty trees, that they trust for preservation of life more to firmness of hold than to those expedients which are so common with caterpillars feeding nearer the ground; the head is slightly narrower than the 2nd segment, into which it is partially immersed; but before the larva has attained its full size, or undergone its last moult, the head appears rather wider than the 2nd segment; its position is always almost prone, its surface smooth, its crown scarcely divided, and the face somewhat convex; the body is almost uniformly cylindrical, but tapers very slightly and very gradually towards both extremities. The colour of the head is dull pale apple-green, slightly reticulated; that of the body bright apple-green, with a narrow medio-dorsal white stripe, which extends continuously from behind the head to the extremity of the anal flap; on each side and just below the spiracles and almost touching them, is a narrow side-stripe almost white, but slightly tinged with yellow; this extends from the head to the extremity of the anal claspers; the dorsal trapezoidal dots are white, with a black central hair; between the trapezoidal dots and the side-stripe are two series of whitish markings, irregular, interrupted, and amorphous, and in addition to these the entire dorsal surface is irrorated with yellow-white dots; the spiracles are oblong and white, with a delicate black circumscription; the ventral surface, legs and claspers are apple-green without markings. It feeds on ash, and is full fed in the first week in July.—*Edward Newman.*

Entomological Notes, Captures, &c.

The Tea Maggot. — Quite a miniature panic has been got up by the presence of small white maggots in tea, more particularly that choice description known as "scented orange Pekoe." It was to be expected that my long articles on injurious insects, in the 'Field' newspaper, would induce the sufferers from the novel annoyance to consult me on the subject, and I am quite willing to acknowledge that when I received the first sample of this infested tea from my valued friend that eminent floral decorator, Mr. William Thomson, of the City Club, I was entirely ignorant of the very existence of such a commercial pest: however, I proceeded at once with the examination, and found that certain samples of scented orange Pekoe were abundantly intermixed with cream-coloured maggots, which viewed sideways exhibited a fringe of hairs round the profile, a corneous head, an obese body, and a swollen incurved anal extremity, reminding me forcibly of the larva of some lamellicorn coleopteron, more particularly of the genus Aphodius. The left-hand figure is a very fair representation of the grub, and the line below



The Tea Maggot.

shows its natural length. Of course I made it my business to learn what I could of its life-history, and the following information was very readily acquired:—

1st. Its food was scented orange Pekoe.

2nd. It became a necromorphous chrysalis, of a pale wainscot-brown colour, during the second week in July.

3rd. It appeared as a perfect beetle before the end of July, and was despatched in a quill to Dr. Power, who at once pronounced it to be Anobium paniceum. It is represented by the right-hand figure, and the line below shows the natural length.

In these memoranda I use the singular for convenience, but the name of these grubs is "legion," for some of the samples which have come before me were replete with them, amounting almost to a sixth of the whole sample.

The insect was named paniceum by Linneus, from its infesting and feeding on bread; it is found eating almost every substance that will yield to its masticating powers —wheat, barley, bread, biscuit, wood, leather, cloth.

It is a native or denizen of almost every country in Europe, and its name appears in all our British lists, even the oldest. I am unable to say whether it is also an inhabitant of China, but this is highly probable: seeing, however, that it is undoubtedly a resident in our London warehouses, there is no ground for supposing it a recent importation from the East, and it must remain for a time doubtful whether the insect gained access to the tea in China or in London. I shall still continue to investigate the matter, and will report progress from time to time. I may mention that the striation of the elytra in this beetle is far less distinct than in the engraving.—*Edward Newman.*

Argynnis Paphia near Scarborough.— I captured a specimen of Argynnis Paphia on Oliver's Mount, near Scarborough, in the afternoon of August 5, 1870.—*Jesse Eccles;* 18, *King Street, Scarborough, August* 19, 1870.

Pieris Daplidice near Portsmouth. — A female specimen of Pieris Daplidice was brought me last week by a Cheltenham collector: he obtained it at Portsmouth, near which place it was taken by his brother.—*Herbert Marsden.*

Pieris Daplidice at Brighton.—Mr. Swaysland, of Brighton, called to show me a specimen of Pieris Daplidice which had just been taken at Brighton: it was still living this 26th of July, 1870.—*E. Newman.*

Aporia Cratægi at Faversham. — I have been much puzzled for several years by finding the pupæ of Aporia Cratægi on posts and in the garden, as we have no white-thorn near; but this year I was fortunate enough to find the larvæ feeding on the apple trees and the pupæ on the trunks. —*W. J. Skelton; The Bounds, Faversham, Kent.*

Sphinx Convolvuli near Chepstow. — I have just taken a fine specimen of Sphinx Convolvuli at Petunias. — (*Rev.*) *E. Sellon; Caerwood, Chepstow, August* 15, 1870.

Captures at Folkstone. — Whilst collecting in the Warren at Folkstone, on the 10th of July, I took A. rubricata and A. rusticata, by beating the Clematis near the Rakemere Pond. These species I believe have been taken once before in the Warren, as recorded in the 'List of Macro-Lepidoptera of Folkstone.' I also took one or two A. strigilata. — *T. N. Hoey;* 8, *Stavely Road, Peckham, London.*

Variety of Argynnis Aglaia. — In the early part of July one of my family was fortunate enough to capture a male variety of A. Aglaia, in one of our excursions to Stubby Coppice, in the New Forest. The markings are very similar to those of the female variety "Charlotta," as shown in your 'British Butterflies.' There are four large, oval, silvery blotches at the base of the hind wing, on its under side, distinctly outlined, the second having a black spot at its outer end. At the hind margin of the wing are seven large oval silver spots. The central line of spots is distinct, but only tinged with silver, and by no means so conspicuous as in the usual type. The green colour is also much duller and deeper in tint than in the ordinary specimens. It was flying amongst hundreds of Adippe, Aglaia, Paphia, with a sprinkling of the black Valezina, but we searched in vain for a second specimen. — (*Rev.*) *James Watson; The Vicarage, Upper Norwood.*

Sugar in July. — It may interest you to know that sugar has been most attractive throughout July in the New Forest: the commoner moths, such as A. pyramidea, T. fimbria, C. trapezina, A. Rumicis, N. brunnea, N. triangulum, &c., were in countless swarms. On one tree a large patch of sugar was completely hidden by a heap of these species, all struggling to get at the sweet attraction. It was a curious sight. The better things also were unusually numerous. L. quadra, C. miniata, C. quercana, L. Turca, C. sponsa, and C. promissa, were by no means scarce. It was a singular feature, too, that Geometræ, Pyralides and Tortrices, were as plentiful on the sugar as the Noctuæ, and I secured many good specimens in each family.—(*Rev.*) *J. Watson.*

Argynnis Lathonia and Chærocampa Celerio near Faversham. — While staying last month with my friend the Vicar of Selling, near Faversham, his youngest son, a boy of twelve, brought me a box to look over, containing a few insects collected by him during the summer of last year and the spring of this; at the same time telling me that he believed there was a "Queen of Spain" among them. Knowing how often Adippe or Aglaia is mistaken for that species, I felt very sceptical; but on opening the box the first thing my eye fell upon was a veritable Lathonia, set to show the unmistakable under side. It was taken last summer, by the roadside between Selling and Chilham, and is in very fair condition. I speedily discovered a second rarity, in the shape of a specimen of C. Celerio, badly damaged unfortunately. This I found had been taken in the house at Woodlands, Selling, the previous autumn. What luck the boys have! There was hardly a specimen of the commoner Fritillaries or hawk-moths in the box! Both of these prizes were generously presented to me by their captor, Master Herbert Beardsworth. — *Hugh A. Stowell; Breadsall Rectory, near Derby, August* 2, 1870.

Colias Edusa var. *Helice.*—I captured a specimen of this insect near Croydon on the 24th inst.: it was unfortunately not in good condition, and bore evident traces of having hybernated. — *C. J. Biggs;* 14, *Pinner's Hill, Old Broad Street, London, July* 26, 1870.

Colias Hyale and other Lepidoptera in the Isle of Thanet. — We have visited our old hunting-grounds near Margate, and found Colias Hyale very scarce. During a stay of nearly three weeks we only observed four specimens; some young collectors also captured four others. This forms a striking contrast to the splendid autumn of '68, when Hyale was so abundant in the Isle of Thanet. Our best capture was a nice pair of Heliothis peltiger. Dysthymia luctuosa was very abundant, but all were more or less worn. We also met with Vanessa Polychloros, Lycæna Corydon, Eremobia ochroleuca, Dianthœcia Cucubali, Aspilates citraria (males abundant, one female), and Crambus Warringtonellus (commonly).—*H. Ramsay Cox; West Dulwich, S.E.*

Parasites on Vanessa Urticæ. — The experience of Mr. J. R. S. Clifford, "that the caterpillars of Vanessa Urticæ are remarkably exempt from ichneumons" (Entom. ii. 132, and copied into No. 4 of the 'British Butterflies'), does not agree with my observations on this species. A few years ago I collected a large number of chrysalids, and placed them in a breeding-cage. But few butterflies appeared, whilst a small species of ichneumon emerged in swarms; the cage became so full of them that I had sometimes to leave it open in the garden for some time in order to get rid of them. The ichneumon-cocoons are formed *inside the chrysalis*, not over the dead larva, as in the Pieridæ and others.—*G. T. Porritt; Huddersfield, August* 5, 1870.

Larvæ of Lycæna Arion.—I have read with great interest, in the August number of the 'Entomologist,' Mr. Merrin's observations on the female Lycæna Arion depositing her eggs; also Mr. Newman's description of the egg; and I have now the pleasure of advancing another step towards a knowledge of the life-history of this species. On the 2nd of July I received from Mr. H. Marsden, of Gloucester, several sprigs of thyme, on which were deposited eggs; and on the 4th I found that the young larvæ had emerged. The only one I could then see was pinkish, with the head black. I placed it on a fresh flower-head of thyme, to which it soon attached itself so closely, and was so similar in appearance, that it was with difficulty I could distinguish it. It fed well until the 14th, when I found it stretched out at full length along the midrib on the upper side of a thyme-leaf, and, it being in the same position next day, I concluded that it was about its first moult. A day later this was effected, and on the following day (the 18th) I noted down the following description:— Length about one-sixth of an inch, stout, but tapering towards the head, which is much smaller than the 2nd segment. General colour dirty pink; head brown and shining. Behind the head is a large almost plate-like dull black mark, from which extends the rather broad, conspicuous, rust-coloured dorsal line. Body sparingly clothed with light brown hairs. After this moult it refused to eat, and I found it dead next day. With the aid of a lens I had examined the withered thyme-leaves on which the eggs had been deposited, and found two empty egg-shells, but never saw more than a single larva at one time, but, seeing it in such different parts of the thyme, thought there were more. What became of the larva which was hatched from the second egg I cannot tell. Mr. Buckler had eggs hatch, but could not detect a single larva; whilst most of Mr. Hellins' seem to have died exactly as mine did, directly after the first moult. Mr. Hellins suggests that, the thyme-flowers withering at this time, possibly the larvæ require some other kind of food at this stage of their existence, or it may be the time when they begin to hybernate.—*G. T. Porritt.*

Deilephila Galii at Leominster. — On the 7th of this month I had the good fortune to take a splendid Galii flying over a bed of Petunias. I have since seen another that was caught by Mr. Neild, of Clifton, a gentleman now staying in Leominster.—*T. Hutchinson; Leominster, August* 13.

Deilephila Galii in Gloucestershire. — I took a specimen of this rarity on the evening of August 10th, at 6.30: it flew into an open window in which were some Petunias. — (*Rev.*) *E. Hallett Todd.*

Deilephila Galii at Chepstow. — I took a specimen of D. Galii yesterday at Petunia-blossoms, at Caerwood, near Chepstow; and saw another on the wing.—(*Rev.*) *E. Sellon; Caerwood, near Chepstow, August* 6, 1870.

Deilephila Galii at Birmingham. — On the 2nd of August, when I reached the Institute where our Natural-History meetings are held, one of the members showed me a fine male specimen of Deilephila Galii, which a lad had given him that afternoon: it was caught in a busy street in the town. On the 3rd of August I had the pleasure of setting another male Galii which a lady caught at Haletowen (about seven miles from Birmingham), whilst it was hovering over the honeysuckle; and last night I was informed of a third specimen (a female) being caught a short distance from Birmingham. —*F. Enock; 75, Ryland Road, Edgbaston, August* 10, 1870.

Deilephila Galii near Derby.— I took a male specimen of D. Galii at honeysuckle in my garden about 8·40 p.m. on the 1st of August; and almost at the same moment my little friend Bertie Barton took a female at Verbena-flowers on the other side of the house; and we took two more D. Galii at the Verbenas on the evening of August 6th.—(*Rev.*) *Hugh A. Stowell; Breadsall Rectory, near Derby, August* 2, 1870.

Deilephila Galii in Herefordshire. — I took a female of this species, hovering over the flowers of the scarlet geraniums, at St. Weonard's, Herefordshire, on the 3rd of August. I do not know that it has ever before been taken in this county.—*Frederick Bond.*

Deilephila Galii near Nottingham.—It may be interesting to some of your readers to know that I was fortunate enough to obtain a specimen of Deilephila Galii at Bramscote, near Nottingham, on the 5th of August. It was found dead in a geranium-bed by a boy who was weeding.— *C. F. Watkins; Pusey Rectory, Farringdon.—From the 'Field.'*

Deilephila Galii at Wolsingham.—I took a fine male specimen of Deilephila Galii in our garden on the 1st of August, at eight o'clock in the evening. I had seen the same insect or others on two previous evenings, one of which I might have captured had not my keen admiration of its beautiful movements, as it went from flower to flower, withheld my hand, till, "presto," it went over the wall. About the same time on the evening of the 9th I took a female of the same insect, but very much worn, it being of no use as a specimen. I kept it alive, hoping to get eggs, but have not succeeded. On the 12th I captured a fine female specimen at half-past ten o'clock; and on the 13th I took another very fine female, without a rub on it, at half-past seven. The flowers they most frequented were Phlox, Geranium, Dianthus, asters and Lilium, but a bed of Petunias was the greatest attraction.—*A. Mitchell; Wolsingham, Durham, August* 15.

Deilephila Galii at Warrington. — On the 7th of this month I had the pleasure of setting out a very fine female D. Galii, taken at the honeysuckle-flowers on the evening of the same day, by my niece, Miss E. Greening, in the garden adjoining mine. It is quite fresh out from the pupa, and in fine condition. — *N. Greening; Bewsy Road, Warrington, August* 14, 1870.

Deilephila Galii at Selkirk and in Buckinghamshire. — I was at Bowhill, near Selkirk, a week ago, and saw three moths captured which answer exactly to the description of

Deilephila Galii. I saw one here yesterday hovering over some flowers in the kitchen garden, but I had no means of securing it.—*John Mathison; Addington, Winslow, Bucks, August* 18, 1870.

Deilephila Galii at Stalybridge.—Several specimens of D. Galii have been observed in this neighbourhood, two of which have been captured, one on the 3rd and another on the 5th of August, about two miles from the Staly Brushes. Both were brought to the Institute of the Stalybridge Naturalists' Club while yet alive, and though bearing signs of having flown much, were nevertheless in very fair condition.—*D. Jolliffe; Stalybridge Naturalists' Club.*

Deilephila Galii at Stamford Hill.—I captured a very fine female of Galii last week, in our garden, at rest on the wooden garden-edging.—*T. Moore; Willow Place, Stamford Hill, August* 16, 1870.

Deilephila lineata and Acronycta Alni.—On the 13th of August I captured two specimens of D. lineata here (Weston-super-Mare), flying about a bed of Petunias in some public gardens. One of these moths is very much worn; the other is a good specimen.—*R. Aldridge; Weston-super-Mare, August,* 1870.

Description of the Larva of Deilephila livornica.—The caterpillar is about three inches and a half in length, smooth and black, but so covered with yellow dots as to appear nearly yellow; the head dull pink; the upper part of the second segment has a semicircular plate-like appearance of the same colour; the dorsal line yellow; each segment blotched with dull red and bordered with black; the black on the front part of the segments, from the fourth to the eleventh, expands into a would-be square spot, but for a series of eight yellow semicircular spots resting on the subdorsal line, the centres of which are pale pink; subdorsal line yellow; spiracles yellow, with a pink blotch behind and below them; the belly, claspers and pro-legs whitish yellow, the lower extremities of the pro-legs black; a large black oval spot on the front part of all the claspers; the upper part of the anal claspers and flap are of the same colour as the head; the horn straight and very rough, red tipped with black.—*Geo. C. Bignell; August* 22, 1870.

Deilephila livornica.—The 'Entomologist's Monthly

Magazine' has lately contained records of no less than eight captures of this insect—one, the Warren, Folkstone, by a man named Griffiths; one in Carmarthenshire; one by Miss G. Blount, at Waltham Abbey; one by a boy at Teignmouth; two by Mr. S. H. Coles, at Dartmouth; one near Aldsworth, Gloucestershire; and one near Kilkenny, Ireland. I shall be obliged for all particulars respecting the captures of this insect, in order to make out the usual digest for the 'Insect Hunters' Year-Book.'—*E. Newman.*

Vanessa Antiopa at Rochester. — I had the good fortune to capture a specimen of this rare butterfly in our own garden at Delce, near this town, on the 18th of this present August. *James Fletcher; Delce, Rochester, August* 22, 1870.

Is Pericallia Syringaria double-brooded? — I bred a few imagos of this insect towards the end of last June, from larvæ that had hybernated last winter: from these I obtained two batches of eggs, both laid at one time; these hatched in about a week, and part of the larvæ fed up rapidly, and changed to pupæ at the end of July; the imagos (between fifty and sixty beautiful specimens) emerged about the middle of August: the remainder of the larvæ are not at the present time one-third grown, so that I expect they will hybernate; but it seems singular that only part of the brood should feed up and appear in the autumn, as the whole of the larvæ were kept out-of-doors in a cool shady place, and I quite expected they would remain in the larva state till next year. —*G. Elisha; Cross Street, Ashley Crescent, City Road.*

Agrophila sulphuralis at Erith. — A single specimen of this rare little Noctua flew to our lamp on the 22nd of June. It was in very fine condition, apparently just out of the chrysalis.—*H. C. Leslie; Erith.—' Science Gossip.'*

Larva of Acronycta leporina. — On reference to your 'British Moths,' I find the larva of A. leporina described with long curved silky hairs, all of them directed backwards. I had the pleasure of taking one feeding on alder (Alnus glutinosa), but I find the hairs on the left side directed backwards, and on the right side directed forwards; the caterpillar having the appearance of being enclosed in a beautiful delicate cocoon, the head thereby concealed as much as the anal segment. — *Geo. C. Bignell;* 6, *Clarence Place, Stonehouse, Plymouth, August* 22, 1870.

Acronycta Alni. — In your capital moth-book you say you do not know what Acronycta Alni feeds on: a friend of mine beat it from birch in this county three days ago.— *F. S. Wesley; Wetherby, Tadcaster, August* 2, 1870.

[The passage in 'British Moths' stands thus:— "With regard to the food-plant of the caterpillar there is considerable doubt: it has been found, in confinement, to eat whitethorn and alder, but I am not certain whether it has been ascertained to eat either of these in a perfectly natural condition." The caterpillar has been beaten off hazel, elm, beech, birch, aspen, blackthorn, whitethorn, dog-rose, bramble, privet, buckthorn, and other trees and shrubs, but I cannot consider its normal food-plants yet discovered.—*E. N.*]

Acronycta Alni feeding on Hazel. — On the 31st of July a young collector, who has occasionally gone out with me to my favourite ground, found the larva of A. Alni feeding on hazel: it "made up" in a piece of peat, Aug. 6th.—*Frederick Enock; 75, Ryland Road, Edgbaston, August* 10, 1870.

Larva of Acronycta Alni. — About the beginning of July last I took the larva of Acronycta Alni on hazel in Leigh Woods, Bristol. It was very small when I found it, and differed considerably in appearance from the full-grown caterpillars, having only the characteristic horse-hair like appendages on the second segment, and instead of being velvety black, with a yellow transverse mark on each segment (as it afterwards became), the posterior part was all a dirty yellowish white; while the anterior part was a dingy brown, with a white stripe along the sides, and a whitish patch on the back of the first two or three segments. You state in your 'Natural History of British Moths' that this caterpillar exhibits no uneasiness when handled; I certainly did not find this to be the case in my specimen, for when disturbed it used to strike its head violently from side to side, and then appeared to feel all round it with its head, in search of the offender. I only succeeded in finding one specimen of this larva, and it unfortunately proved to be infected with ichneumons. Before succumbing to their attacks it gnawed a large hole in a piece of paper at the bottom of the box I kept it in, but had not strength left to form any sort of cocoon.—*R. Aldridge; Weston-super-Mare, August*, 1870.

Leucania albipuncta at Canterbury. — I took a very beautiful specimen of L. albipuncta, on the 11th of the present month (August), at sugar near Canterbury: on the 12th I took a second specimen: they are male and female, and apparently just emerged from the chrysalis, being in such fine condition. I have shown them alive to several gentlemen. — *G. Parry; Church Street, St. Paul's, Canterbury, August* 14, 1870.

Triphæna subsequa near Birmingham. — On July 23rd I took a fine specimen of Triphæna subsequa at sugar near this place.—*F. Enock; 75, Ryland Road, Edgbaston.*

Plusia orichalcea in Cornwall. — I have great pleasure in recording the capture of a specimen of Plusia orichalcea, flying at a lamp, last night.—*L. Cumming; Boscastle, Cornwall, August* 2, 1870.

Dysthymia luctuosa in Hampshire. — On the 15th of July I captured four specimens of D. luctuosa at Crabbe Wood, near Winchester. The specimens were flying over clover, especially in a corner where two fields meet, one of clover, the other of wheat. I noticed other specimens besides those I captured.—*C. L. Raynor; 15, Liverpool Street, Dover.*

Liparis dispar: the Larva found. — Some doubts have been lately expressed as to whether Liparis dispar may still be regarded as a British insect. On the 7th of April, this year, I found a small hairy larva feeding on a plant of Azalea which had been brought into the house. As the markings became more distinct I recognised it as L. dispar, and of course took particular care of it. In due time it spun up, and a few days ago emerged, a splendid male, measuring two inches across the wings, and, besides being larger, was of a much richer and darker colour than the specimens usually seen in cabinets—bred "in and in," by collectors, from foreign insects. I reared the larva on whitethorn, its more natural food-plant. — *H. E. Tratman; 12, Victoria Road, Bristol, July* 23, 1870.

Boletobia fuliginaria in the Blackfriars Station of the Metropolitan Railway. — That rare insect Boletobia fuliginaria was taken in the Blackfriars Station of the Metropolitan Railway, by Mr. E. Clark, on the 16th of July, and exhibited by him on Wednesday, July 20th, to the members of the West London Entomological Society, held at the

"Omnibus and Horses," opposite Paddington Church, where it can be seen any Wednesday evening, from half-past 8 to 10 p.m., during the present month, by all entomologists who may wish to see it.—*E. W. Timms.*

Pygæra bucephala with three wings. — The notice in the last number of the 'Entomologist,' of the emergence of Dicranura vinula with only three wings, reminds me that I had a similar instance occur last year with Pygæra bucephala. In this case also it is the right under wing that is missing. — (*Rev.*) *P. H. Jennings; Longfield Rectory, July* 18, 1870.

Dicranura vinula two years in Pupa. — On the 26th of April last I had Dicranura vinula emerge after lying nearly two years in the pupa state.—*Id.*

Chœrocampa Celerio and Vanessa Antiopa at Cheltenham. —I have a specimen of each of these rarities, which were taken at Cheltenham. C. Celerio was caught in the town by a butcher's boy, who impaled it on one of those *too* common pins known to entomologists as "pokers." Mr. Day, a student of Cheltenham College, having obtained it, has transferred it to me. It has been damaged by the rough treatment it received. The specimen of V. Antiopa was taken in a garden at Cheltenham, during the first week in August, by Mr. E. K. Robinson, also a student at the College. Being caught by the hand as it was flying over a flower, it has suffered a slight rubbing.—*J. Merrin; Gloucester.*

Abstract of the Proceedings of the Entomological Society, June 6, 1870.

Hemigynous Specimen of Brachycentrus subnubilus. — Mr. M'Lachlan exhibited a partially gynandromorphous specimen of Brachycentrus subnubilus, captured at Cheshunt by Mr. Boyd: the maxillary palpi and the left fore wing were of the female form, whilst all the rest of the insect was of the male form. This was only the second instance of gynandromorphism in the Trichoptera which had come to Mr. M'Lachlan's knowledge.

Gall-like Swellings on the Juniper. — Mr. Albert Müller, after referring to the breeding by Herr Hartmann of various Lepidoptera from gall-like swellings on the twigs of juniper, exhibited some stems of juniper from Godalming which bore swellings, some of very large size, which were supposed to be caused by insects.

Niobe and Adippe. — Mr. Butler mentioned that whilst looking through the volumes of Freyer's Beiträge he had stumbled upon three plates illustrating the metamorphoses of Argynnis Niobe and Adippe, and upon referring to the text he found some interesting remarks on the possible identity of the two forms. He then read a translation of a passage (Neuere Beiträge, vol. iii. p. 11), from which it appeared that, though at one time firm in the belief that the two were distinct species, Freyer's confidence in the correctness of that view was very much shaken when he succeeded in rearing both from the caterpillar. In vol. iv., however, Freyer added that his later investigations left him still in doubt, though he adduced additional evidence in favour of their identity. The distinctions which he relied on in the perfect insects did not hold good in examples in Mr. Butler's collection; the figures of the larvæ show a very close resemblance, the differences being less conspicuous than from Freyer's description would be expected, and even those differences, according to Freyer, are not constant. Mr. Butler concluded as follows:— "If then the larvæ and the imagines vary *inter se*, and the pupæ are alike, why are we to consider the two species distinct? Is it because there is a something about the two insects that at once tells us which form we have before us, even though we cannot describe it? I do not admit that this is always the case, but if it were, it is no more than one sees in acknowledged varieties of Vanessa C-album and fifty other species."

Death of Mr. T. H. Allis.—Thomas Henry Allis, for some years an assiduous collector of British Lepidoptera, died at York on the 1st of August, 1870, aged fifty-three years, and was buried in the Friends' burial-ground, Heslington Road, York: he was the only son of Thomas Allis, F.L.S., the eminent naturalist and osteologist, who still survives. The collection of Lepidoptera commenced by the father and continued by the son is likely to remain entire.—*E. N.*

THE ENTOMOLOGIST.

No. 83.] OCTOBER, MDCCCLXX. [Price 6d.

Description of the Larva of Lythria purpuraria. — Rests with the claspers firmly attached to a stem of the food-plant, the 11th, 12th and 13th segments lying parallel thereto, but the other segments as far as the 10th being porrected in a perfectly straight and stick-like position at an angle of 40° with the stem: the legs are appressed to the ventral surface, and are directed forwards: when breathed on or annoyed it tucks in the head, and bends the anterior part of the body into an imperfect circle. The head is of the same width as the 2nd segment, and is porrected on the same plane as the body; the face is flat, and the antennal papillæ are unusually long and conspicuous; every part of the head emits short scattered hairs: the body is long and slender; it tapers slightly towards the head, and is gradually thickened towards the caudal extremity; each segment is also slightly restricted at the anterior extremity; there is a slight lateral skinfold, and all parts of the body, more particularly the extremities, emit scattered hairs. The colour is so various as to defy my powers of description; all are striped longitudinally, but the colour in no two is precisely alike; all the stripes of the body originate in the head, where they may be thus described: the median area is dusky, longitudinally intersected by a narrow paler stripe; it is also bounded on each side by a pale, almost white, stripe, and this by a much darker stripe; below this darker stripe, and adjoining the mouth, the colour is very pale; the striping of the body, as I have said, is continuous with that of the head; the prevailing colour of the dorsal surface is bottle-green or rosy brown, and of the ventral surface pale glaucous green, the division of the respective surfaces being very clearly defined; the dorsal region is always interrupted by a triple medio-dorsal stripe, of which the median portion is the lightest: the ventral surface has three or five stripes just indicated, still paler than the general surface, and indeed almost white: the legs are nearly of the same colour as the ventral surface, but scarcely so glaucous; the anal flap and claspers are generally tinged with pink; in one specimen they are bright red. On the 14th of August two of my specimens spun very complete cocoons among the leaves of knot-grass, using the leaves as a coating to the cocoon, and thus entirely concealing themselves from sight; and on opening these four days later, namely on the 18th, I found them suspended head downwards from little pads of silk : on the following day they had changed to pupæ, and were suspended from the silk by means of six hooks or cremastræ at the anal extremity; these were in three pairs; all of them were rather long, but one pair longer than the others: the pupa is smooth, rather obese, and rather pointed at the anal extremity; the prevailing colour is olive-green; the wing-cases are very green, the wing-rays being whitish and rather conspicuous: the body is inclined to dingy brown, and each segment has a double series of oblong spots of a darker brown; the spots themselves, as well as the series, are placed transversely. The moths emerged at the end of August. Mr. Button, so well known for his indefatigable zeal as a collector, was the fortunate captor of this beautiful geometer in Essex, in the autumn of last year, as already recorded at p. 352 of the fourth volume of the 'Entomologist.' From somewhat wasted females he procured a supply of eggs, and subsequently an abundant crop of larvæ. With his customary liberality he has placed some of them in my hands, and I have great pleasure in publishing this description.—*Edward Newman.*

Description of the Larva of Acidalia rusticata. — It rests in a bent position, its claspers attached to its food-plant, and its anterior extremity raised: the head is slightly narrower than the 2nd segment, and is partially received therein; it is divided, but not deeply, on the crown; it is beset with numerous linear fleshy processes which have the appearance of elongated warts: the body gradually increases in width after the head; it is much dilated on the sides, and has two indistinct ridges on the back; the incisions of the segments are well marked, and each segment is obviously divided into six sections by transverse furrows, besides the manifest skinfold which intervenes between the segments; the sections are composed of wart-like projections, which give a rough and scabrous appearance to the entire body, in addition to which it is beset with many clavate processes, which might be compared to the glandular hairs frequently occurring in plants; the extremity of these processes is flattened after the fashion of the antennæ of butterflies. The colour of the head is black, the processes being dirty white; the body is dingy putty-coloured, freckled with smoky black; the ventral is slightly paler than the dorsal surface. I am indebted to Mr. J. R. Wellman for a liberal supply of this most interesting larva. I am unable to state what is its natural food-plant, but, like so many of its kindred, it feeds freely in confinement on Polygonum aviculare (the common knot-grass).—*Edward Newman.*

Description of the Larva of Dianthœcia irregularis.—On the 13th of August last I received, through the kindness of the Rev. E. N. Bloomfield, of Guestling, near Hastings, seven larvæ of this insect. Unfortunately, perhaps from having been too closely packed during the hot weather, four of them were dead on arrival; another one appeared sickly, and soon died, but the remaining two seemed to be quite healthy. They were not full-grown, but had, I think, assumed the markings of the adult larva; were of average thickness, and about three-quarters of an inch in length. Head considerably smaller than the 2nd segment, and emits a few short hairs. Body nearly uniformly cylindrical, but tapering very slightly anteriorly; segmental divisions tolerably conspicuous; skin smooth and slightly glossy; usual dots rather indistinct. General colour pale yellowish brown, tinged with green; head wainscoat brown, sparingly dotted with black. Dorsal line composed of a series of narrow V-shaped smoke-coloured marks, one on each segment, and the apex of each pointed posteriorly: these V-shaped marks are most conspicuous from the 5th to the 9th segments; on the others they appear as an interrupted grayish line, bordered on each side with smoke-colour; subdorsal lines inconspicuous, dull white margined very narrowly with brown; along the spiracles extends a smoke-coloured stripe, dark on the lower part, but shading gradually into the ground colour above. The ground colour between the dorsal and spiracular lines is faintly variegated with brown, and below the spiracles, which are black, is a yellowish white stripe. Belly semitranslucent and shining, grayish tinged with green. Feeds in a state of nature on Silene otites, but mine did not refuse Lychnis Flos-cuculi. In a few days they began to wander about the breeding-cage, to the sides of which they finally attached themselves, when a single ichneumon emerged from each. Each of these parasites spun its cocoon beside the dying larva: these cocoons, when completed, were very curious, and almost exactly resembled dried husk-covered seeds of some plant. Mr. Bloomfield informs me that a large proportion of the larvæ of this insect are infested with this parasite.—*Geo. T. Porritt; Huddersfield, September* 2.

Entomological Notes, Captures, &c.

Aporia Cratægi at Faversham.—I have been much puzzled for several years by finding the pupæ of Aporia Cratægi on posts and in the garden, as we have no whitethorn near; but this year I was fortunate enough to find the larvæ feeding on the apple trees and the pupæ on the trunks.—*W. J. Skelton; The Bounds, Faversham, Kent.*

Impregnation of Vanessa Polychloros.—In your life-history of Vanessa Polychloros, in the 'Entomologist' for September, you say impregnation takes place at the spring season, generally in the month of May, and sometimes as early as April. As a general rule, this may be so; but that exceptions occur is, I think, proved by the fact that in the autumn of 1857 I had a number of young larvæ of this species, as recorded by me in the 'Entomologist's Weekly Intelligencer' of the 7th of November, 1857, p. 46. The imago had been caught early in September by a friend of mine, in his hat, six miles from here, and it was placed alive in a box: in two days it had laid over a hundred eggs in regular patches; in little more than a week they hatched, and fed up on elm to nearly half an inch in length. Having about the same time taken an imago in my summer-house, I examined a neighbour's elm tree, and there found on the young suckers a number of larvæ precisely like those I had feeding. Thus it was clear that at least two specimens of V. Polychloros had that autumn been impregnated and had deposited their eggs. I may mention that my larvæ did not survive the winter.

The species has been scarce in this district now for many years, but it was tolerably common in 1857 and 1858, and I frequently found the pupa hung up under copings and on palings in the suburbs, and even in the town itself in the neighbourhood of gardens.—*Joseph Merrin; Gloucester.*

Pieris Daplidice at Portsmouth.—You will be glad to hear that a second specimen of Pieris Daplidice has been taken at Portsmouth, in the last week in August: it was sent alive by its captor to my Cheltenham correspondent, and has kindly been given to me as a companion for the specimen noted last month. This one is a male, in very bad order; the first being a female, in generally good condition, but a little chipped on one hind wing.—*H. W. Marsden.*

Variety of Rhodocera Rhamni.—I wish to record the capture of a curious variety of Rhodocera Rhamni. I took it at Midhurst, in Sussex. It is a female, with nearly half of the right upper wing, from the body to the edge, of the male's colour. I have never seen one like it.—*H. A. Bull; Harrow.*

Camponiscus Healæi.—A careful inspection of the alders growing at Shirley, Surrey, last September (1869), resulted in the collection of twenty-four of the curious larvæ of this species. By feeding them exclusively on leaves of the alders from which they were taken, and by keeping the mould in the breeding-jar nice and damp, I was successful last May in rearing fifteen examples of this rare Tenthredo.—*C. Healy.*

Hesperia Actæon at Swanage and Tyneham, and Tryphæna subsequa at Wareham.—Hesperia Actæon has been taken in great numbers in two new localities in this neighbourhood this season, at Swanage and near Tyneham. I took a fine specimen of Tryphæna subsequa here on the 12th of July.—*T. Parmiter; Kimmeridge, Wareham, Dorset, Sept.* 17.

Deilephila lineata near Maidstone.—I took a splendid specimen of Deilephila lineata at Hunton, near Maidstone, on the 23rd of August. It flew into the drawing-room, probably attracted by the light, and, after fluttering about for a few minutes, finally settled in the fire-place, where I captured it. It is a very large specimen, measuring three inches and a half across the wings, and is in beautiful condition.—*H. D. Greville;* 60, *Threadneedle Street, September* 9, 1870.

Deilephila lineata in Cornwall.—A day or two since, on looking over a small collection of moths, made this summer, by a gentleman residing in Looe, I found another specimen of Deilephila lineata, caught at St. Martin's Vicarage, the same parish in which the specimen previously noticed by me in the 'Entomologist' occurred. — *Stephen Clogg; Looe, September* 17, 1870.

Deilephila lineata at Colchester.—My brother, Mr. A. J. Harwood, took a male Deilephila lineata at rest on an asparagus bed in our garden at Colchester, on the 28th of May.—*W. H. Harwood.*

Larva of Deilephila lineata.—On the 4th of July last a friend called on me with two larvæ of Deilephila lineata to name; but they differed from the description you give of the larva in the September number of the 'Entomologist.' The head and body soot-black; in one a dorsal line of reddish brown, in the other no dorsal line at all; the subdorsal line yellow, uninterrupted; slightly below these and between each segment was a dull reddish blotch; the belly and claspers ochreous, speckled with black. On inquiry I found that three larvæ had been taken on a vine in a gentleman's garden near Ryde. I accordingly wrote for permission to search in this garden, whereupon the gentleman most obligingly saved me the trouble by looking himself for more, and he found on vine and garden centaury four more of the larvæ. One unfortunately escaped before he could send them to me, but on the 26th of July I received three of the larvæ; two of these were not quite so large as those I had seen on the 4th. The largest spun up in the leaves at the bottom of the box on the 27th, but the web was so fragile that it rolled out; it turned to pupa on the 30th. The pupa remained of a light orange-brown colour for about a fortnight, and then changed to a darker colour, after which, day by day, I could see its progress to maturity. On the 26th of August a fine imago emerged. One of the other larvæ was unmistakably stung by an ichneumon, from the effects of which it died. The other remaining larva disappeared under some moss in the breeding-cage after feeding for about a week, and I hope I may be so fortunate as to be able to record the appearance of another Lineata in my cage before long. These last three larvæ differed from the former three in that the subdorsal lines were indicated by yellow ocelli.—*A. B. Farn; 8, Richmond Terrace, Whitehall.*

Deilephila Galii and D. lineata at Plymouth.—I have had one specimen of Deilephila lineata, and have heard of three others; all taken here about the middle of last month. I have also had a fine specimen of D. Galii, taken from a poplar.—*J. Brooking Rowe; 16, Lockyer Street, Plymouth, September* 16, 1870.

Deilephila Euphorbiæ near Ipswich.—I had the great pleasure of seeing this afternoon, for the first time, a larva of Deilephila Euphorbiæ: it was shown to me by Mr. Eaton, whose grandson picked it up crawling in the road on the outskirts of the town; but unluckily he damaged it so much that, although only half-grown, I am afraid its best days are over. Mr. Eaton also told me he had another brought to him about a week ago, which fed very readily on ladies' bedstraw, and only laid up yesterday, so that I was just too late to see it. Is it not remarkable these larvæ being found so far inland? I know there is no sea spurge within a long distance from where they were discovered.—*Edward F. Bisshopp; Ipswich, September* 17, 1870.

Deilephila Galii at Witham.—I have just had a rather rubbed specimen of Deilephila Galii given to me: it was taken at rest on an apple tree in the garden of Mr. J. H. Blood, of this town, a day or two back.—*W. D. Cansdale; White House, Witham, August* 31, 1870.

Deilephila Galii near Bolton.—On Saturday, the 6th of August, I took a very fair male specimen of Deilephila Galii, at Rivington, near Bolton. There is something rather remarkable in this insect being found so far from the coast (over twenty miles) and so late in the year. It was flying about in the hot sunshine about 2 P.M., and hovering round a woodland pool.—*T. Calderbank.*

Deilephila Galii at Weston-super-Mare: Correction of Error.—I write to apologize for, and to correct, an error, which appeared in the August number of the 'Entomologist,' where I stated that I had captured two specimens of Deilephila lineata at Weston-super-Mare, one of the moths being much worn and the other a good specimen. The fact is that, having examined the good specimen carefully and satisfied myself that it was undoubtedly Lineata, I hastily concluded that the other specimen, which was caught at the same time and place, was the same species, only a good deal knocked about. On a closer examination, however, I am convinced that the worn specimen is D. Galii, which seems to have been common in so many places this year.—*R. Aldridge; Clifton, Bristol, September* 13, 1870.

Deilephila Galii at Stanley-by-Perth.—I have been successful in finding, about a mile from this place, three larvæ of Deilephila Galii, feeding on yellow ladies' bedstraw. It is eleven years since this beautiful caterpillar was found in Perthshire.—*Thos. Marshall; Stanley-by-Perth, Sept.* 19.

Deilephila Galii at Ipswich.—A specimen of this moth was brought to me by a gardener on the 3rd of August: it was found in a garden a little way out of this town.—*A. L. Hunt;* 22, *Fonnereau Road, Ipswich.*

Deilephila Galii at Newcastle-on-Tyne.—I had a fine larva of Deilephila Galii brought to me by my brother on the 7th of September, which fed a day or two on bedstraw, and went into the soil on the 11th. It was found in the engine-shed of the Carlisle Railway, in this town: there is a quantity of sand used for the engines; I suppose the larva was brought there with it. A friend of mine, Mr. M. Henderson, found a small larva of D. Galii feeding on the bedstraw on the coast near South Shields, about the middle of August.—*J. Hamilton; Newcastle-on-Tyne.*

Deilephila Galii in Birmingham.—I have a beautiful specimen of Deilephila Galii, which was caught by a boy not many yards from my own door, at half-past four in the afternoon of the 2nd of August, while resting on a creeper running up the side of the house: it is a male insect, and had not been long out of the chrysalis. I have also two specimens of the above caught by a friend of mine, Mr. Hunt, at Hopwood, not far from here: these are male and female, the female being worn: he caught them while hovering over a bed of Petunias.—*J. Landon;* 57, *Grosvenor Street, Birmingham, August* 26, 1870.

Deilephila Galii at Tooting.—I have received a fine specimen of Deilephila Galii, caught by a friend at Tooting, in Surrey, about the 12th of August.—*E. H. Hast;* 226, *Walworth Road, S.E., August* 25, 1870.

Deilephila Galii on Durdham Downs.—A nearly full-fed larva of this species was found on the 5th of September on Durdham Downs, by a young collegian, C. Chamberlayne, who very kindly gave it to me. I have not resided here long enough to know whether the species has been taken here before.—(*Rev.*) *J. Greene; Apsley Road, Redland, Bristol.*

Larva of Deilephila Galii at Wallasey.—Amongst the captures of D. Galii recorded in last month's 'Entomologist' I saw that one had been taken at New Brighton. Thinking that where the moth was the larva should also be, I made a search, and was successful in discovering it. On the 28th of August I took six feeding on bedstraw (Galium verum), and since then have taken others: other entomologists, to whom I communicated my good fortune, have also found the larvæ. I should be glad to know whether it has been found anywhere besides at Wallasey.—*William Greasley; Sand Lane, Wallasey, September* 14, 1870.

Second Brood of Notodonta ziczac.—Some Ziczac pupæ from last season emerged early this year, and from these I obtained a few eggs, which I placed in a cage apart from any other eggs, and when hatched I fed them on sallow: they ate freely and grew fast, and a short time since I discovered that several of them had become pupæ. Last Wednesday, on opening my box to place fresh food with the rest of my Ziczac larvæ, I discovered a very fine and perfect imago, and since that time another moth has made its appearance. I have at present a few larvæ of this moth, found upon poplar, which are exceedingly minute, and others found upon sallow, which are nearly full grown.—(*Mrs.*) *F. I. Battersby; Cromlyn, August* 27, 1870.

Apamea ophiogramma.—We have been fortunate in finding this season a solitary specimen of Apamea ophiogramma, captured in a field which borders a stream in our grounds.—*Id.*

Liparis dispar near Odiham.—A young collector residing here captured, towards the end of July, a male specimen of Liparis dispar in Butter Wood, about two miles from Odiham. He brought the insect to me for identification: it is both larger and darker than the bred specimens usually seen in collections.—*A. J. Spiller*; *Odiham, September* 21, 1870.

Pachnobia alpina in Perthshire.—During my collecting tour in Scotland, in July, I had the good fortune to take this very rare species, at two o'clock in the morning, at rest on a rock on one of the highest mountains in Perthshire: it is now in the possession of Dr. Battershell Gill.—*Thos. Eedle; 9, Maidstone Place, Goldsmith Row, Hackney Road.*

Agrophila sulphuralis and Crambus pinetellus at Clapton. —A male specimen of Agrophila sulphuralis was beaten out of some thistles at Lower Clapton by my friend Mr. Cane, of that place, on the 2nd of August: it was a little worn, owing to the lateness of its capture, but it was in other respects perfect. The same entomologist also took a specimen of Crambus pinetellus in the same locality. I may also mention that the last-named insect has been rather common in the forest during the past month: I have seen and taken several. —*W. J. Argent; Fern Cottage, Wanstead, August* 18, 1870.

Lepidoptera on Hackney Marshes.—On the 4th of April I found three larvæ of Apamea unanimis beginning to form their cocoons in the stems of thistles: these reached the perfect state on the 10th and 11th of May: four pupæ of the same species were found under the loose bark on willow trees, and also pupæ of the following:—H. oleracea (in abundance), C. cubicularis, A. megacephala, C. fluctuata, E. subnotata, and that now universal pest E. pseudo-spretella. The larvæ of Orthosia upsilon feed only at night, retiring to their hiding places under the loose bark during the day, where they may be collected by dozens at the end of May. Larvæ were also collected, and the following insects bred:—T. pyrastrana (two perfectly black), T. transitana, A. salicana, S. neglectana, and imagos of D. saturnana and E. Cerussella (both flying in the evening). At the end of July I met with the imagos of A. sulphuralis, E. apiciaria, C. Selasellus, G. tenebrosella and maculiferella, and found larvæ of E. Poella and E. Cerussella. The following species came to sugar on the 23rd of July:—Agrotis aquilina, C. blanda, A. pyramidea, A. Tragopogonis, M. typica, M. Maura, A. oculea (in swarms). Coleophora Therinella: I have bred a few specimens from larvæ found on the Marsh during the winter. C. bicolorella: bred from larva found on hazel. C. viminiella: bred from larva found on sallow.—*W. Machin; 21, Argyle Road, Carlton Square, Mile End, September* 20, 1870.

Caterpillar eating Potatoes.—Would you mind telling me the name of the following caterpillars, a dozen of which I have already found eating the potato itself? The largest is about an inch and a half, the colour is glossy gray, inclining to white on the under side; there are four rows of black spots, two on each side; it has also a black head and a dark brown plate behind its head. One has just now changed its skin, so I send it you.—*Sydney Klein; The Rock, Reigate, Surrey, August* 27, 1870.

[It is doubtless the larva of Gortyna flavago.—*E. N.*]

Spider or Mouse.—I have been keeping a large spider in a closed glass case, feeding him on moths and butterflies, and I find the wings are thrown out in the same manner and condition as they were found and described in the long-continued "spider or mouse" controversy, and thus proving that my opinion, of the spider feeding on both these insects, is correct, and that they may have been the source of the deposit of wings at Filey and other places. — *Stephen Clogg.*

The Tea Grub.—Thank you for investigating the tea grub so pertinaciously. I am inclined, however, to take exception to your remark that "it must remain for a time doubtful whether the insect gained access to the tea in China or in London," since the chests are lined with lead, which is hermetically soldered down. The gentleman who brought me the sample of tea has written to me as follows:—"The grubs were found immediately the chests were opened upon arrival. The package consists of a wooden exterior, inside of which is a leaden case, in which the tea is put and soldered down, and at the top of the tea, where the lead is soldered there is some paper. When the lead was cut open the grubs were found adhering to the paper and in the tea. Some hundreds of chests were found infested with the grub."—*W. Thomson; City of London Club, Old Broad Street, E.C., September* 9, 1870.

Correction of an Error: Pachytylus cinerascens a British Insect.—The locust that was forwarded last year from Aberdeenshire was erroneously stated by me to be P. migratorius: it is P. cinerascens, and is the only British specimen that I have seen of that species, which is the Locusta Christii of Curtis, 'British Entomology,' xiii. 608.—*Francis Walker.*

[Mr. Curtis's specimen has left the country with the rest of his collection, and is now in Australia. It is the first recorded British example of the species: the Aberdeen specimen is the second.—*E. Newman.*]

The Wheat Midge. — The accompanying envelope contains portions of three ears of wheat, eaten by a small caterpillar, of which you will perceive many. They seem to be gregarious, yellow and hairy, but of their nature I know nothing. Any information you may be pleased to give will be much esteemed. I fear the pest is very prevalent.—*A Farmer; Wilton, July* 28.

(Having forwarded the preceding note to Mr. Newman, whose communications on the subject of insects injurious to vegetation have so frequently appeared in the columns of the 'Field,' that gentleman has sent us the following interesting particulars.—*Editor of* '*Field.*')

The little caterpillars or grubs received from your correspondent "A Farmer" are the larvæ of the wheat midge, known amongst us entomologists by the Latin name Cecidomyia Tritici. The fly which proceeds from the grub has the appearance of a very small gnat, and is properly classed with that familiar group of insects. Mr. Walker, the celebrated dipterist, has described no less than one hundred and sixty-two British species of Cecidomyia, besides enumerating about fifty others, the distinctive characters of which are not clearly determined. Mr. Walker's labours consist principally in translating, abridging, and connecting the diffuse but highly elaborated descriptions of Winnertz and Loew, especially the former, who observed the economy of many of the species, while the latter has devoted his time and talents more especially to describing the insects in their perfect state. Most of the species in their larval or grub state feed on living vegetables, often producing those galls and distortions which attract the notice of even the most unobservant; some live in decaying Fungi, several in the galls of the oak, although I believe that none are known as the original architects of any oak-gall or oak-apple; they simply make a home of the galls on the oak which other insects have produced. Mr. Walker's monograph of the genus, commencing at p. 77 of the third volume of his 'Diptera Britannica,' exhibits an amount of learning, combined with personal observation, that has rarely been equalled. Many of the effects produced by the larvæ or grubs of these little gnats while feeding are familiar to us all, although the gnats themselves are so minute as to be sure to escape observation. Cecidomyia rosaria forms very pretty rosettes on half a dozen species of willow; C. Salicis forms woody galls on the twigs of Salix cinerea; C. Papaveris lives in the seed-pods of the scarlet field-poppy; C. Cratægi lives in those leaf-tufts which may be said to decorate the tips of the shoots of the white-thorn, and these were so common last year that I could not find in my garden a single tip that had escaped this familiar ornamentation; C. Veronicæ feeds within the running stems of the germander speedwell, fastening the leaves together, and forming a densely hairy pouch, in the centre of which the creature undergoes its transformation; C. bursaria forms pyramidal hairy galls on the upper side of the leaves of the ground ivy; C. Urticæ lives in galls on the leaves and stems of the stinging nettle; C. Pyri in the rolled-up leaves of young pears; C. Linariæ makes those pretty little tufts on the tips of the buds of the yellow toad-flax; and so I might go on with a hundred other species, each of which confines its attention to one particular tree, shrub or herb, to decorate in its own fanciful way. It is one of this ubiquitous genus of insects that your correspondent has observed in the wheat, and one which, although perhaps seldom noticed by agriculturists, is familiar to men of science, to whom it was made known by the father of Entomology in this country, the late Rev. William Kirby, who published respecting it, in the 'Linnean Transactions,' one of the most complete entomological papers we possess. In the very same volume of the 'Transactions' is a paper by Mr. Marsham on the same insect; and subsequently the late estimable Professor Henslow published, in the 'Journal of the Royal Agricultural Society,' some additional information; and the communications of these three eminent and most talented writers comprise all we know of this minute enemy of the farmer. If there be a fault in these learned papers, it is to be found in the inferences they contain, not in the facts they record: their facts are indisputable. I may acknowledge that inferences and numerical calculations generally fail to convey to my mind that satisfactory conviction which results from a simple statement of facts. I mention this because our French and German naturalists have followed us in this matter, and have made their own calculations, which have induced unnecessary alarm. I will cite Mr. Kirby's statistics and inferences regarding this particular insect, the wheat midge. "In order to ascertain," says Mr. Kirby, "the quantity of mischief produced by one Tipula (Cecidomyia) within particular limits, I went to a field of fifteen acres, which was sown partly with white and partly with red wheat. In this field I took five stations, one on each side and one in the centre. In each station I examined a certain number of ears, grain by grain, without selection. The result was that in thirty ears of white wheat seventy-three grains were destroyed by larvæ, which is at a rate of not quite two grains and a half to an ear; and in twenty ears of red wheat twenty-nine grains were destroyed, which is nearly at the rate of one grain and a half to an ear. Take the whole together, and the proportion will be about two grains to an ear, which, I suppose, may be about a twentieth part of the produce." Hence Mr. Kirby infers that the damage to the wheat in the particular instance in question amounted to a twentieth part of the crop, or one bushel of wheat in twenty; and, inasmuch as his mode of examination was a perfectly fair one, and made "without selection," he would assess the *average* loss at a twentieth of the crop. Now, granting that one grain in every twenty is consumed by the grubs in question—an admission which I make simply on the faith of Mr. Kirby's single experiment, and not from any knowledge of the fact —the doubt I would raise in this: Whether by abstracting one grain of wheat out of every twenty, or one potato out of every twenty, or a twentieth apple, apricot, pear or plum, while still in a vigorously growing state—and this is the case as stated—whether by such process you really and absolutely destroy a twentieth part of the produce either in weight, measure or value, or whether Nature does not by some occult proceeding of her own distribute among the nineteen grains of wheat, or nineteen potatoes, apples, apricots, pears or plums that remain, a large proportion of the nutriment which she had originally designed for that twentieth part that has been abstracted? The loss does not seem to be an *absolute* loss, but a loss which Nature has an especial provision of her own for compensating in some degree, if not entirely. I have an especial object in these remarks. The same disease, if I may call it so, has appeared simultaneously in many places, and has created very needless alarm, as it did in 1796. It must be very obvious that the direct tendency of such alarm is to enhance the price of food, and especially that description of food derived from cereals, whether barley, oats or wheat, which is the first necessity of life, and I would gladly counteract this tendency if in my power to do so. The life-history of this insect is extremely simple. The parent female is furnished with a long, a *very long* oviduct, which she introduces between the valves of the calyx of the wheat, and then lays her eggs at the very bottom—the inner base of the inflorescence. These eggs soon hatch, and the young grubs feed on the concealed parts of the inflorescence, and unquestionably preclude the possibility of that particular grain ever attaining maturity. The grubs are of a bright orange colour, and may often be found in little clusters of four or five between the valves of the calyx, sometimes naked, and at others encased in a very thin silken pellicle attached to the valves, or to a grain of wheat. They fall to the ground when full fed, and turn to chrysalids on or under the surface of the ground, and do not assume the fly state until the end of May or first week in June of the year following.—*E. Newman; York Grove, Peckham, July* 30. —*From the 'Field' Newspaper.*

Abstract of the Proceedings of the Entomological Society, July 4, 1870.

Oxyptilus lætus.—The Hon. T. De Grey exhibited a series of Oxyptilus lætus (Zeller), from Brandon, Suffolk.

Galls on Ammophila arundinacea.—Mr. Albert Müller exhibited some galls on Ammophila arundinacea, found last autumn by Mr. J. Traill about two miles north of Aberdeen; they occurred rather abundantly on stunted specimens, one gall on each plant. The gall consisted of the imbricate closely-sheathed leaves of a top-shoot, which contained a single longitudinal narrow cell, from two to three lines long, the upper part of which was pierced by the escaping insect. The insect, however, had not yet been detected.

Cynips ramuli on Oak.—The Secretary exhibited a large woolly gall of the oak and a number of living specimens of Cynips ramuli which had emerged therefrom. The gall was found on the 24th of June, at Idsworth, near Horndean, by Sir J. Clarke Jervoise, Bart., who wrote respecting it as follows:—"My attention was yesterday called to what I thought was a ball of sheeps' wool in a meadow where there were no sheep, and I placed it under a glass clock-shade for security. This morning I found the clock had stopped, and a quantity of flies were in the case and in the works of the clock. I never happened to have seen a similar growth on the oak, a sprig of which is visible in the woolly gall, and I have sent some of the flies in spirits. There are more hatched out in the box since I placed the oak-gall in it." How many specimens of the Cynips hatched in the clock-case does not appear, but the box exhibited was found to contain upwards of eighty.

Acaridæ in the Buds of Black Currant.—Prof. Westwood made some observations on a very minute form of Acaridæ, to which he had already directed the attention of the Society; they were about $\frac{1}{200}$ of an inch in length, found in the unopened buds of the black currant, the blossom of which they destroyed; they were elongate, cylindrical and fleshy, and possessed only four legs. A somewhat similar form found in galls was some years ago described in France; and the Rev. M. J. Berkeley had recently called Prof. Westwood's attention to a third form which attacks pear trees, and makes small patches or pustules on the leaves. At Oxford he had found many of these blotches, and as many as thirty or forty Acari in a single blotch; in some cases there was a small opening in the leaf, but in the majority there was no visible aperture; perhaps the parent, when depositing her eggs, makes a small hole which afterwards closes over. Notwithstanding the existence of only two pairs of legs, he thought these were a mature form; and the three species seemed to constitute a distinct four-footed tribe in the family Acaridæ, distinguished likewise by having the whole surface covered with minute tubercles (like the parasite of the human nose) arranged in as many as sixty transverse rows; at any rate they required to be segregated under a separate generic name, and he proposed that of Acarellus, the three species being Acarellus Pyri, A. Ribis-nigri, and A. Gallarum. Mr. Mr. Albert Muller suggested that these forms perhaps belonged to the already-named genus Phytoptus or Phytopus, the species of which inhabit excrescences of various plants, had at one stage of their existence only four legs, and are closely allied to Simonea Folliculorum.

THE ENTOMOLOGIST.

No. 84.] NOVEMBER, MDCCCLXX. [PRICE 6d.

Description of the Larva of Deilephila Galii.—The head is rather wider than the 2nd segment, and also rather wider at the mouth than on the crown; the head emits a number of rather stiff bristles directed forwards: the body is stout and cylindrical, evidently attenuated towards the head when the larva is stretching itself out either to feed or crawl; the 12th segment is the stoutest, and emits a scabrous dorsal horn which is slightly curved; the horn differs in length in different specimens; in some it is very short and stumpy, while in others it forms a regular and rather elegant curve, and every intermediate gradation of form occurs: each segment may be described as being composed of two divisions, the first flat and unwrinkled, the second transversely wrinkled, or perhaps, speaking with more precision, transversely divided into sections, the last of which is rather wider than the others: the anal flap and anal claspers, as well as the ventral surface of the 5th and 6th segments, are beset with short stiff bristles. The colour is various: in three specimens I have before me the ground colour is dull black, but I am aware that the tone of the ground colour varies in intensity, sometimes being so light as to approach a pale wainscoat-brown; the three specimens vary in other respects.

A has a red head and horn; a narrow medio-dorsal stripe of pale canary-yellow; a lateral series of ten rose-coloured spots on each side, nine of which are nearly circular, and the tenth somewhat pear-shaped, the smaller extremity extending to the base of the caudal horn; and a narrow lateral stripe in the region of the spiracles almost white. The rose-coloured spots are connected by a series of smaller yellow spots, five of which intervene between each two of the former, thus forming a continuous series of spots, which commences on the 3rd segment and terminates at the base of the coral-red horn. After moulting the dorsal stripe disappeared, *B* has a reddish head and horn, no stripe on the back or sides, but a conspicuous series of ten yellow spots on each side.

C has a black head and horn; no trace of the dorsal or lateral stripes, or of the circular paler spots.

All three agree in having numerous white dots in the neighbourhood of the spiracles, which are very light-coloured; the 2nd segment has something like a dorsal plate, which is pitchy red: the ventral flap and claspers are of the same colour: all have a yellowish-white labrum, and the base of the antennal papillæ of the same colour. I am indebted to Mr. Alfred Owen of Liverpool, and Mr. Mawson of Cockermouth, for these larvæ.—*Edward Newman.*

Contribution towards a Life-History of Polia nigrocincta.—The moth emerges from the chrysalis in August and September; and no doubt makes proper provision for the continuation of its kind; but whether it oviposits in these months, or hybernates in the perfect state, copulating and ovipositing in the spring, and again, supposing the egg laid in August and September, whether it survives the winter in that state, as suggested by Freyer, or is hatched and hybernates as an immature larva, as conjectured by Mr. Gregson,—I have no evidence whatever: it is certain that our positive knowledge of them in the Isle of Man commences in the early summer of the following year, when they are found of small size about the roots of Statice armeria by day, or the blossoms by night: they also sometimes ascend the stems of other plants. In confinement they feed exclusively on the flowers of the thrift; but, in a state of nature, they possibly eat the leaves of other plants of the rocky coast of the Isle of Man, for, without doubt, they have been found at rest on the stalks of grasses, Silene maritima, and other littoral plants. When young they are of a semi-transparent pale green colour, but as they approach maturity they gradually assume a deeper tint and the markings I am about to describe. When approaching maturity, the larva prefers to conceal itself by day among faded flowers or other rubbish at the bottom of the glass or gallipot in which it may be kept, and ascends in the evening to the almost spherical flower-heads, holding the stalk firmly with its claspers, and concealing its head and anterior segments among the pink corollas: when handled or otherwise annoyed, it relaxes its hold and falls to the bottom of the vessel, rolled in a compact ring, which position it will persistently maintain for some minutes. When full fed, which period arrived to my specimen on midsummer day, the head is slightly narrower than the second segment, scarcely notched on the crown, very glabrous, and emitting a few scattered hairs, which are mostly directed forwards: its general position is semi-prone, but sometimes, when stretched forward and waved about in the manner common to Noctua larvæ, it is porrected almost on a plane with the body: the body is almost uniformly cylindrical, but has a slight lateral skinfold; its surface is velvety, and emits a few scattered hairs, more especially about the anal flap and aperture. The colour of the head is dull pale green tinged with brown, and semi-transparent; the ocelli are black and conspicuous: the dorsal area of the body is dull olive-brown, obscurely tinged with pink, and delicately reticulated with vermicular markings of a darker tint; there is a double and very narrow medio-dorsal stripe of the same darker colour, and the very slender interval between the component moieties of this double stripe, as well as the region immediately adjoining the boundaries of the stripe, is paler than the general dorsal surface; these markings are inconspicuous, as well as the ordinary trapezoid dots on the dorsal surface of each segment, each of which dots is slightly paler than the surrounding area, and has a black central dot which emits a hair; at the incisions of the segments is a transverse green line, very narrow, very slender, and interrupted in the middle by the double medio-dorsal stripe already described; the lateral skinfold is pale, almost white, constituting a narrow stripe which is continuous from the head to the anal claspers; the lower portion of this pale stripe is slightly tinged with pink; it passes directly through the region of the spiracle, the 1st and 9th segments of which are just above it, and the others seem to rest on its upper margin; these spiracles are oblong, and of a rich olive colour, with a very slender and delicate black circumscription; the ventral is paler and greener than the dorsal area, but the transition is gradual, the tint below the lateral stripe differing but little from that immediately above it, and being equally decorated with vermicular reticulations; the belly itself is green without these markings; the legs and claspers are of a dingy pale uncertain and semi-transparent green, very similar to that of the belly.—*Edward Newman.*

Description of the Larva of Cucullia Verbasci.—When full fed, at the beginning of July, it rests on the stem or leaves of Verbascum Thapsus (hoary or moth mullein) in a straight position, and is a conspicuous and attractive object: all the specimens I have obtained were from this plant, and I cannot help thinking that considerable care is requisite in assigning any other food to this familiar species: when annoyed, it sometimes throws itself on the ground rolled in the ring form: the detailed description which follows is written rather with a view of distinguishing Verbasci from cognate species than from any idea of its novelty: I may mention that in most of our English collections specimens of Verbasci appear as the representatives of the two continental species, Verbasci and Scrophulariæ. The head is rather narrower than the 2nd segment; its position is prone, its face flattish, and its crown without a perceptible notch: the body is almost uniformly cylindrical, but the incisions of the segments, which appear to be thirteen in number—and the reader will please to observe I am now speaking of the segments of the body only, not of the entire larva—the incisions, I say, are deep and generally well-marked, but there is a decidedly transverse skinfold between each two of the segments, which interferes with the precision of the boundaries of the segments. The appearance of a thirteenth segment in the body of lepidopterous larvæ is not very uncommon: in all that Natural Order which I have called Xyleutites or carpenters, from their unceasing occupation of working in wood, in these, as in the case now under consideration, the segments follow the ordinary numerical formula as far as the 11th inclusive, counting the head as one, but beyond the 11th are three divisions, making fourteen in all, and the question whether the additional or supplementary division is really an integral part of the 12th or 13th segment, is one which may reasonably excite discussion among those skilled in controversy; to myself it appears most unquestionably a portion of the 13th segment. The colour of the head is yellow, with nine black spots on the face, two of these, being circular and situated below the forehead, somewhat represent eyes, and above each of these pseudo-eyes is an amorphous mark often supposed to resemble an eye-brow; four other very small spots mark the outline of a nose, and a larger bilobed spot beneath them may be supposed to indicate nostrils; this parody of the human face is very familiar to school-boys, most of whom are well acquainted with this common caterpillar: the general colour of the body is milky white, with a tinge of blue-green; the 2nd segment has three bright yellow blotches on its anterior margin, and also a transverse series of six nearly circular black spots, and a second series of eight black spots near the posterior margin; the 3rd and 4th segments have three yellow blotches in a transverse series, and also a transverse series of eight black spots, of which those nearest the middle of the back are the smallest; the following segments, being the 5th to the 11th both inclusive, agree in each having a transverse series of four bright yellow spots, two of which are dorsal, and one on each side is lateral; both the dorsal yellow spots are bounded before and behind by a black spot; the anterior black spot is nearly circular, the posterior transversely elongate; each of the lateral yellow spots is also accompanied by four black ones, the two anterior of which range, but not very precisely, with the circular black spots already mentioned, and the others with the corresponding elongate black spots; thus the twelve black spots on the dorsal surface of each segment constitute three trapezoids, of which the dorsal one is somewhat irregular, and the lateral ones still more so; the dorsal trapezoid is in every case far more conspicuous than the lateral ones; it must also be noted that the anterior lower spot of each lateral trapezoid includes or represents the black spiracles; on each segment below the lateral trapezoid are two circular black spots placed diagonally; at the base of each clasper is another black spot: the ornamentation of the 13th segment differs from the preceding; it is divided apparently into two segments, of which the anterior has a transverse yellow spot preceded by two round black spots and followed by a transverse series of six rather smaller black spots; the second division consists of the anal flap, which has a medium shade of yellow preceded by a direct transverse series of four circular black spots, and followed by a bent series of four much smaller and more approximate black spots; the transverse folds of skin intervening between the dorsal segments are also decorated with black markings, which are perceptible when the larva is at rest, and become conspicuous when it is crawling. The ventral surface is ornamented with black spots, but has no yellow ones; the 5th and 6th segments have each eight such spots, the others much fewer; the legs are yellow; the ventral claspers are yellow at the extremities, and each has several black markings, more particularly a large one in front; the anal claspers are yellow at the extremity, and have four black spots, on the outside of which the anterior is large and pyriform; every black spot, whether on the head or body, emits a black hair, a circumstance suggestive of some physiological connexion between the two; I find no other hairs than these on any part of the body.—*Edward Newman.*

Description of the Larva of Ennomos tiliaria. — Rests in a very stiff and stick-like position, with the claspers firmly attached to the twigs of Betula alba (birch), on which it feeds: the head is porrected on the same plane as the 2nd and 3rd segments; the legs are directed forwards, the second and third pairs being closely appressed to the pectoral surface of those segments: the head is nearly equal in width to the 2nd segment, the face flat, and the anterior margin squarely truncate: the body gradually increases in size from the head to the 12th segment, which is slightly the stoutest of the whole; the 4th segment, bearing the third pair of legs, is somewhat produced on the ventral surface, and the legs are seated on the elevation; their form is a crescentic curve, and their direction forwards; the 5th, 6th, 7th, 8th and 9th segments are long in proportion to the width; the 6th and 9th have transverse dorsal ridges, that on the 6th segment being decidedly the larger of the two: the 7th segment has a transverse ventral series of four lumps or warts, each wart being transversely elongate. The colour of the head and body is gray and brown, except the ventral surface of the 12th and 13th segments, which is glaucous-green. The 13th segment terminates in three points directed backwards; the middle one of these is very much smaller than the others. These larvæ, for an ample supply of which I am indebted to Mr. Birchall, changed to chrysalids about the 16th of July, and to moths on the 1st of August.—*Id.*

Entomological Notes, Captures, &c.

Sirex Gigas, &c. — I have a specimen of Sirex Gigas, taken in July, which answers to your description in the 'Entomologist' for September. On the 18th of September I found a fine Sirex at rest on a large fir tree at Bowdon. The antennæ, head, thorax and body, are entirely dark metallic-blue; no trace of yellow, except on the legs, which are dark reddish yellow. It is altogether rather smaller and slenderer than my first specimen, the terminal spine broader and flatter, and the ovipositor much shorter. In form and structure they are alike. Do the sexes differ? If so, which is the male? If another species, I shall be glad to know something about it.—*John S. White; Droylsden Lane, Droylsden, near Manchester, September* 19, 1870.

[The Sirex is Juvencus, and, like the last specimen noticed, is a female, a fact determined at once by the presence of the ovipositor.—*E. Newman.*]

Cynips lignicola in Ireland. — The Devonshire oak-gall is very abundant this year in the neighbourhood of Killarney, but I did not observe it in any other county of Ireland. In a few years it may perhaps occupy this island in the same way as it has spread over England. — *Francis Walker; Wanstead, September* 19, 1870.

Aphis Brassicæ. — Herewith I send you a few specimens of an insect which is at present too abundant on the cabbage. Can you tell me what they are, and what is the best remedy for destroying them?—*John M. Campbell; 9, Carrick Street, Glasgow, September* 16, 1870.

[The insect, although perhaps not strictly agreeing with the genus Aphis as now restricted, is still called Aphis Brassicæ. Its marvellous power of reproduction and its injurious effect on the cabbage are well known to the market-gardeners around London.—*E. Newman.*]

Liparis dispar. — I am surprised to see a notice of the occurrence of the larva of Liparis dispar (Entom. v. 172), as I was previously under the impression that this species was generally common, both in the caterpillar and perfect state. I have had about a hundred of the chrysalids this year. Is not some other species intended?—*Jas. H. Rowntree; York, September* 19, 1870.

[Certainly not; your chrysalids are not British, that is, they are reared from eggs or caterpillars received from France. The interest attaching to the communication in question is that the specimen was supposed to be a perfectly *wild* one, a *Fera Naturæ*. In my own estimation it is a matter of very little moment whether a given specimen is French or English, but that was just the pith of my correspondent's communication, which was therefore of great interest to those who attach a value to the exclusively British character of their collections.—*E. Newman.*]

Spider or Mouse?—I am delighted to find Mr. Clogg again in arms for his friend spider (Entom. v. 185). Like a true Briton he does not know when he is beaten. I fancied both spider and mouse had been in battle slain, and that bat carried off the trophies of victory; but then he certainly took an unfair advantage, slyly waiting until his opponents had disabled one another, and then pouncing down on the field, armed with fresh and irresistible facts. The mouse is dead. I had him stuffed, and often look at him regretfully, fearing he came to his end an innocent victim of circumstantial evidence; but it is very gratifying to find that the spider only ran away, and lives to fight again. Perhaps Mr. Clogg will be good enough to say what species of spider he has experimented upon, and how the bodies of the butterflies and moths were disposed of; for it was the total absence of these, in the original find at Ilkley, which seemed conclusive against spider, although not against bat or mouse. So far as we know, spiders are incapable of swallowing anything except liquids.—*Edwin Birchall; October* 2, 1870.

[I must entirely acquit Mr. Clogg of any desire to renew the controversy: the passage in question was written for my private information, but I thought others besides myself would be interested in the facts observed.—*E. Newman.*]

Return of Mr. Eedle from Scotland.—Happy the entomologist who lives in Perthshire, which seems to be one of the richest entomological localities in the kingdom. It was here that Richard Weaver gathered in his harvest; and here that poor old Turner attained celebrity for his Petasia nubeculosa, to which he declared himself led by some little bird that told of their whereabout; and I trust that on the same ground Thomas Eedle may reap the reward of his industry and perseverance. On his return I looked through his well-filled boxes, noting what appeared noteworthy.

In butterflies there is a remarkably good series of Erebia Epiphron, but not so good of E. Medea; Mr. Eedle met with the latter in one locality only, and there not abundantly. Of Cœnonympha Davus there is no great show, and no varieties of mark: the extremely uniform, unocellated character of this butterfly in the North of Scotland and in Ireland, while the Lancashire specimens are so richly varied and so beautifully ocellated beneath, induces one to doubt the propriety of uniting them under one specific name. Lycæna Alexis is larger and more beautiful than in England; but Mr. Doubleday pronounces them to be correctly so named.

In Geometræ the collection is very rich: of the common Ypsipetes elutata there is a lovely series: the varieties seem endless. Lobophora lobulata is in great variety, and Cidaria immanata equally so: the latter insect, like Elutata, seems inexhaustible in its protean powers. Dasydia obfuscata, Fidonia pinetaria and F. carbonaria, Coremia munitata, Melanippe tristata, Acidalia fumata, Larentia cæsiata and L. ruficinctata, Emmelesia ericetata and E. blandiata, are in great force. And there is a series of Thera juniperata slightly different from our Croydon insect, and taken two months earlier in the year.

In Noctuæ there is a single specimen of Pachnobia alpina, a series of Hadena adusta and one extraordinary variety, H. contigua, H. rectilinea, Noctua neglecta, Plusia interrogationis, Anarta melanopa, and black Xylophasia polyodon.

In Pyrales, &c., a fine series of Scopula alpinalis, and Crambus margaritellus.

Among the Micros, I may notice Epigraphia avellanana, Pœdisca Solandriana in wonderful variety, Euchromia flammeana, E. arbutana, E. palustrana, Dicrorampha plumbagana, Phlœodes tetraquetrana, Penthina ochromelana, Cleptes rusticana, Mixodia Schulziana, Coccyx vacciniana, and Eupœcilia lepidana.—*Edward Newman.*

Deilephila lineata at light. — I have just received a specimen of Deilephila lineata taken at a gas-lamp in Dover, on Sunday evening, the 2nd of October.— *Thomas Eedle; 9, Maidstone Place, Goldsmith Row, Hackney Road, Oct.* 6.

New Locality for Pachetra leucophæa. — A collector at Tunbridge has just sent me two specimens of Pachetra leucophæa, taken in that town at gas-lamps: one of them is a very good one, the other indifferent. Mr. Newman has seen and named them.—*Thomas Eedle.*

Potato-feeder. — I think you are mistaken about the larva found in a potato. Gortyna flavago appeared in the winged state in August and September. Probably the larvæ feeding on potato were those of Hepialus Humuli or Xylophasia polyodon.—*Henry Doubleday; Epping.*

A Visit to Hayling Island. — On the 8th of last month a friend and I paid a visit to South Hayling, for the purpose of collecting plants and insects. My chief object was to search Euphorbia Paralias, to see if I could find any trace of the larva of Deilephila Euphorbiæ: in this I was unsuccessful, as there was not a plant to be seen that had been eaten by any larvæ of Macro-Lepidoptera. I should certainly take this place to be the head-quarters of E. Paralias in the South of England, as it covers acres of the sand-hills in company with Psamma arenaria. I was there also on the 7th of September, 1868, and returned home with the same result as regards Euphorbiæ. Perfect insects were exceedingly scarce, probably owing to the stormy weather we had for some days previous to our visit. With plants we succeeded better, finding several good things; and on the whole spent a very pleasant and interesting day.—*J. Pristo; Alverstone, Whippingham, Isle of Wight, October* 10, 1870.

Economy of Depressaria cnicella. — During the past summer the larvæ of Depressaria cnicella were quite plentiful on the sea-holly in this district, and I have succeeded in rearing a long series of imagos. The egg appears to be laid early in spring, and the larva feeds up rapidly. The first traces of it are to be found on the Eryngium in the beginning of May, and by the latter end of that month they are all full-fed. In some places they are found in small families on the crown of the plant, where their presence is easily detected by the dirty brown appearance of their domicile; but they are more frequently met with feeding singly in the rolled-up leaf, and then they are not easily discovered, for the sharp spines of the plant forbid a close inspection, unless the searcher has taken the precaution to arm himself with strong gloves and a stout clasp-knife. When full fed some of them drop to the ground, and spin themselves close silken cocoons; mingled with grains of sand, just below the surface; others form slight silken cocoons in the rolled-up leaves, and in these turn to dark brown pupæ. The imagos continue to emerge during the greater part of June, and it is most likely that they hybernate like the rest of the Depressariæ; but I have been unable, with all my care, to keep one alive more than a few days.—*H. Moncreaff; Southsea.*

Epinephele Hyperanthus. — I have just been looking over the last number of your excellent work on 'British Butterflies,' and must thank you for the information therein contained. There is, however, an omission in your description of Epinephele Hyperanthus, which is, I think, worth correcting, as it may lead some of your younger readers astray. I refer to your remark about "the indication of the ocellated spots on the upper side of the wings," which you call an "indication and nothing more." Now this description applies admirably to the male, but certainly does not to the female "ringlet," which is often quite as brightly marked on the upper as on the under side. — *Alfred E. Hudd; Stapleton Lodge, Stapleton Road, Bristol, October* 11.

[I should be much obliged for a sight of these specimens. —*E. Newman.*]

Calamia lutosa near Huddersfield. — I found a fine male specimen of Calamia lutosa at rest on a gas-lamp near Clare Hill, on the 4th of the present month. I only mention it as a species new to this neighbourhood; and its occurrence seems rather remarkable, as I know of no rushes growing within miles of the place where it was taken.—*G. T. Porritt; Huddersfield, October* 12, 1870.

Deilephila Galii at Cainscross.—Some few weeks ago the son of a clergyman who lives near me brought a very fine specimen of D. Galii for inspection, which he had captured in his garden at Cainscross.—(*Rev.*) *E. Braund; Cainscross, Stroud, October* 12, 1870.

Moultings of Deilephila Galii.—Eggs grass-green, rather small, hatched August 16th; larva dull pale green; food Galium verum. First moult, August 23. — Larva brighter green; dorsal, subdorsal and spiracular lines slightly indicated, being of a lighter colour; dorsal area darker green;

horn blackish. Second moult, Aug. 29.—Larva grass-green; dorsal area darker; a narrow yellowish green dorsal line; subdorsal and spiracular lines pale yellow, edged with black on the upper sides; ten oval yellow spots, one on each segment, in the subdorsal line, between which and the legs the surface is profusely sprinkled with minute light-coloured specks. Third moult, Sept. 3. — Many specimens of a deep sea-green, some lighter and some darker; the dorsal area always darkest; dorsal line greenish yellow; subdorsal and spiracular lines yellow; the ten oval spots larger and of an orange colour; spiracles white; horn black, with the base dirty yellow; head grass-green; edge of mouth black; prolegs black; some specimens entirely black, with the before-mentioned coloured markings; all have the whole surface sprinkled with more distinct minute pale-coloured specks, most numerous between the subdorsal line and legs. Fourth moult Sept. 12. The larvæ almost invariably eat their cast-off skins.—*W. May; East Grinstead.*

Notes on Progress in British Lepidopterology during the last few years, showing the advantages of working at Specialities. — A few years ago some of our restless spirits, having become blocked, so to speak, in their collections, turned their attention to special families or genera, with the following results. First the Eupitheciæ were worked by the northern collectors, and followed by a few more southern men, closely and carefully, until they are now well known to all practical entomologists: the new species which have been added or differentiated speak well for the critical and careful observations of our entomologists; and though there remains one species to clear up in our list, there is but one species, which has cast its shadow before it, likely to be added in the present state of our knowledge. Closely following the Eupitheciæ, the genus Lithosia attracted the attention of the northern men, and two species were added—one new to Science, the other a well-known continental species; whilst two of our three rarest species were discovered in profusion in the New Forest by two collectors sent from here "prospecting;" and another species, having a dark hairy larva with bright orange markings, has cast its shadow before it from the Isle of Man. Then the clear-wings were made specialities, and one species, lost on the death of one of our most successful collectors, was worked out as to its life-history, and now forms a series of gems in collections which never hoped to possess the species; and another, known only in odd cabinets by single specimens down here (in one by a pair), is now in rows in our best cabinets; and another, about which so little was known or cared that it became a moot point whether it ever had any claim in our list, has been got, south and north, in profusion; whilst another of our old rarities has cast a shadow before it which will probably ere long ensure the possession of the reality: the same remarks apply to a heath-feeding species not yet in our list; whilst the most beautiful species in the genus, once unique in it, the glory of one of our most useful collectors, now graces all our best cabinets, (in some) as a long row of fire amongst the red or yellow belts. Then the long-neglected plumes became the order of the day, and the life-history of apparently closely-allied species proved how different lepidopterous insects might be in their earlier states, and yet require the most practised eye to differentiate them in their imago state: species new to Science were the result; whilst the delicate fingers of a lady in the South have captured and set a species new to the British list. There is still another new species, in the hands of our most esteemed English entomologist, not yet announced. Last, but largest, the Sphingina: for several years we have been working at them, and though the progress was slow at first, still it was and is now most satisfactory: Lineata bred in the South, Lineata and Celerio captured, and the latter bred from larvæ taken in the Isle of Man; whilst the larvæ of Galii have been taken in abundance on our coast during August last, one acquaintance boasting the possession of above one hundred, another of eighty, gone down "all right," and others of less numbers down to a single pupa. Other families have been persistently pursued with like results, but, fearing to occupy too much of your valuable space, let this suffice to show the advantages of working out special families when practicable. — *C. S. Gregson; Rose Bank, Fletcher Grove, Liverpool, October* 1, 1870.

Heliothis peltiger at Bognor. — I have much pleasure in recording the capture of a fine specimen of H. peltiger at Bognor, in August last, by my friend Mr. S. Cowper. It was beaten out of a hedge in the daytime. — *E. A. Fitch; 90, Queen's Road, Bayswater.*

Xylina Zinckenii at Darenth.—I have to record the capture of a most splendid specimen of Xylina Zinckenii at sugar, in Darenth Wood, on the 3rd of October: I took it from the reverse side of the tree to that which I had sugared. I was accompanied at the time by Messrs. F. Standish, Pryer, and other friends.—*J. Moore; Willow Place, Stamford Hill, London.*

Anticlea sinuata at Tuddenham and Icklingham. — I ought to have told you that I took three caterpillars of Anticlea sinuata at Tuddenham and Icklingham in August.—(*Rev.*) *A. H. Wratislaw; School Hall, Bury St. Edmunds, October* 9, 1870.

Chœrocampa Celerio at Lytham.—On Tuesday last I had a beautiful specimen of Chœrocampa Celerio brought alive to me. It was found in the street, opposite my house, in a heap of bricks, by a bricklayer's labourer. It appears to have only just come out of the chrysalis, and is a perfect gem.—*William Gregson; Lytham, October* 14, 1870.

Flight of Aphides.—During the warm hours of the fine days that usually occur at the end of September and in the beginning of October the air is sometimes filled with myriads of Aphides, which are for the most part the last winged viviparous generation of the year. They were especially numerous during this season, and probably Aphis Rumicis in its various forms contributed largely to their numbers. Two other species were then in great swarms, the first on peach-leaves, the second on leaves of the vegetable marrow. The first is Rhopalosiphum Persicæ of Sulzer, and the most extraordinary instance of its abundance was in Belgium, in 1834. It was very numerous near London in 1866, but has occurred in larger numbers during this season. The swarms come to a full end on the peach-leaves, which they thickly cover, and do not perpetuate their existence by the egg-state. The winged females die soon after their arrival on the leaves, and the ensuing inclement weather destroys their offspring in an early stage of growth. The other species or subspecies may be named Aphis Cucurbitæ, and has been mentioned in the 'Zoologist,' and is here described :—Body short-oval, smooth, pale or dark green, dull. Nectaries black, very short in the wingless state, longer in the winged state. Another species in the wingless state also frequents the leaves of the vegetable marrow, but is comparatively rare: it is larger, grass-green, shining; the antennæ are much longer, and have black rings; the nectaries also are much longer, and have black tips.—*Francis Walker; Elm Hall, Wanstead.*

Haggerstone Entomological Society.

Aug. 4.—Mr. E. G. Meek exhibited specimens of Lythria purpuraria (bred by Mr. Button, of Gravesend), and of Scoparia Zellerii, Dicrorampha flavidorsana, Acidalia emutaria and Herminia derivalis. Mr. Elisha, living larvæ of Pericallia syringaria, and examples of Scoparia Zellerii, captured at Box Hill. Mr. T. Eedle, specimens of Dasydia obfuscata, Emmelesia blandiata, Coremia munitata, Erebia Epiphron, &c. Mr. Clark, several varieties of Arctia caja.

Aug. 11.—Mr. Bartlett exhibited a variety of Boarmia repandata, together with specimens of Catocala promissa and C. sponsa. Mr. A. Harper, a variety of Liparis monacha. Mr. Boden, a very dark specimen of Setina irrorella and Lithosia complana.

Aug. 18.—Mr. Meek exhibited Pempelia obductella, *n. s.* (captured by Mr. Button, of Gravesend), Acidalia osseata, and a variety of Argynnis Adippe, the usual silver spots on the under side of the hind wings being absent. [This is the variety Cleodoxa, figured in my 'British Butterflies,' p. 32.—*E. Newman.*] Mr. Moore, an example of Deilephila Galii, captured at Stamford Hill.

Aug. 25.—Mr. Bartlett exhibited specimens of Phycis abietella. Mr. E. G. Meek, some larvæ of Scardia chorargella, feeding in a species of Fungus. Mr. T. Eedle, specimens of Fidonia pinetaria. Mr. Elisha, a series of fine bred Pericallia syringaria. Mr. Bryant, Emmelesia unifasciata and Nonagria Elymi.

Sept. 1.—Mr. Boden exhibited fine specimens of Angerona prunaria, and a variety of the same species. Mr. Elisha, a very dark variety of Tephrosia crepuscularia. Mr. Eedle, jun., some beautiful varieties of Pædisca opthalmicana, Melanthia rubiginata, Lobophora lobulata and Ypsipetes elutata. Mr. Hoey, a life-like preserved larva of Stauropus Fagi.

Sept. 8.—Mr. Elisha exhibited bred specimens of Sesia chrysidiformis. Mr. Eedle, the third known British specimen of Pachnobia alpina, captured by him this season near the summit of a high mountain in Scotland; also beautiful varieties of Xylophasia polyodon, Cidaria immanata and Larentia ruficinctata. Mr. Harper, varieties of Arctia villica. Mr. Lorimer, preserved larvæ of Ephyra porata, Acronycta Psi, Hadena Pisi, Dianthœcia conspersa, Zeuzera Æsculi and Acronycta Aceris.

Sept. 15.—Mr. T. Eedle exhibited specimens of Eupœcilia subroseana, Penthina prælongana, Peronea caledoniana, Coccyx vacciniana and Euchromia arbutana. Mr. E. G. Meek, a specimen of Dianthœcia irregularis (bred by the Rev. W. H. Wratislaw), Polia nigrocincta, and Epunda nigra (bred from larvæ collected by Mr. Meek in the Isle of Man); also varieties of Cirrœdia xerampelina (captured in the Isle of Man by Mr. Warrington); together with specimens of Pieris Daplidice and Lycæna Acis (taken by Mr. Button, of Gravesend). Mr. Bryant, specimens of Agrotis agathina.

Sept. 22.—Mr. Elisha exhibited specimens of Catocala sponsa. Mr. T. Eedle, Eupithecia consignata and specimens of Thera juniperata? bred by him from larvæ found feeding on juniper high up on one of the mountains of Scotland, and which it is thought may prove to be a new species. Mr. Raine, preserved larvæ of Abraxas ulmata. Mr. Lorimer, preserved larvæ of Orgyia pudibunda and Notodonta camelina. Mr. J. A. Clark, a variety of Polyommatus Phlæas, one of the under wings being whitish.

Sept. 29.—Mr. Elisha exhibited Ptilophora plumigera, Notodonta cucullina, Ennomos erosaria and Herminia derivalis. Mr. E. G. Meek, a very dark specimen of Epunda lichenea from the Isle of Man; also a Nola, captured by Mr. Button, which he thought might probably prove to be a new species. Mr. J. Moore, a fine variety of Lycæna Adonis. Mr. Healy, the imago, larva and cocoon of Camponiscus Healæi, a rare species of Tenthredo, which he had been very successful in rearing this season.

THE ENTOMOLOGIST.

No. 85.] DECEMBER, MDCCCLXX. [PRICE 6d.

Sherwood Forest. By EDWIN BIRCHALL, Esq.

I send you a notice of captures made in Sherwood Forest, during a visit of two days, in August last. Sherwood lies between Retford and Mansfield, and, although of much less extent than formerly, great tracts of ancient woodland, studded with thousands of venerable trees, still remain; and I believe in no part of England can forest scenery be seen in equal perfection. The district surrounding the little village of Edwinstowe especially retains its original wildness, and the insects referred to in this paper were all captured in that neighbourhood.

The country is gently undulating in character; the northern portion lies on the magnesian limestone formation, the southern on the new red sandstone; both usually very rich in insect life.

The weather was not favourable for day-flying insects, and only seven species of Diurni were observed. Vanessa C-Album has been taken abundantly in the forest, and Apatura Iris occasionally, but I did not see either species. Larva-hunting and pupa-digging produced but small and rather unsatisfactory results, and the morning hours were pretty much spent wandering through the grand old forest, so rich in memories of English history and romance, beneath trees which may have sheltered those heroes of our childhood, Robin Hood and Cœur-de-Lion, or even that greatest of English kings the first Edward, with whom Sherwood was a favourite hunting-ground.

The timber is principally oak and birch, bilberry and bracken. The tree known as "the major oak" is perhaps the largest in the forest; it is thirty feet in circumference at its least girth, at the level of the ground upwards of fifty feet, and a dozen men might stand in its hollow interior: this giant tree, to which we may not improperly assign an age of one thousand years, is still growing vigorously; its vast head, which overshadows a space of two hundred feet in diameter, was rich with autumnal tints, and, gilded by the setting sun, seemed a mighty painted dome. Sherwood, as described by the matchless pen of Scott, is no fancy sketch, but an accurate picture of the scene. "The sun was setting upon one of the rich grassy glades of the forest; hundreds of broad-headed, short-stemmed, wide-branched oaks, which had witnessed perhaps the stately march of the Roman soldiery, flung their gnarled arms over a thick carpet of the most delicious greensward; in some places they were intermingled with beeches, hollies and copsewood of various descriptions, so closely as totally to intercept the level beams of the sinkng sun; in others they receded from each other, forming those long sweeping vistas, in the intricacy of which the eye delights to lose itself, while imagination considers them as the paths to yet wilder scenes of sylvan solitude." ('Ivanhoe'). It needed but the burly form of Friar Tuck to restore the picture of those long-past days; and truly the jolly clerk of Copmanhurst is not without his modern representative, for on the table of the inn at Edwinstowe was a bill, left by a previous visitor, in which occurred the following item:—"To six gallons of beer in the Forest." Who he was, or why so thirsty, I did not learn.

Noctuæ visited the sugared trees in great numbers. Of Amphipyra pyramidea and other common species the hosts were countless, sometimes three deep, sitting on one another's backs. Omitting species of universal occurrence, the following is a list of the insects taken:—

Cymatophora diluta (very abundant), Hydræcia nictitans (very abundant), Luperina cæspitis, Apamea gemina, Noctua glareosa, N. Dahlii, N. neglecta (all three common, the last both red and drab varieties), Charæas Graminis, Agrotis suffusa, A. agathina, Triphæna ianthina, T. fimbria, T. orbona (all three very common), Neuria Saponariæ, Orthosia suspecta (very common), Epunda nigra, Aplecta occulta (seven specimens), Hadena Proteus, Stilbia anomala. Of that fine species, Euperia fulvago, for which I believe Sherwood to be the most prolific, if not the only certain English station, nearly three hundred specimens were taken. Its congener, Cosmia trapezina, was even more abundant. Common everywhere and usually a most variable insect, strange to say at Sherwood all the specimens were of a yellow variety, closely resembling Fulvago in colour; and as it also, when at rest, folds its wings in a precisely similar manner to Fulvago, the resemblance was very striking, and often deceived me for a moment. Whether this mimicry really acts as a protection to either insect I offer no opinion; but the fact is curious that here (Newlay), only fifty miles distant, where we have no Fulvago to mimic or protect, Trapezina is under no restrictions as to the colour of his coat, and wears drab, yellow, red or brown indifferently. Crambus inquinatellus swarmed everywhere, and C. pinetellus was not uncommon amongst fern at dusk.

Although the capture of so many good insects offers an irresistible attraction to the entomologist, a night in Sherwood is rather trying to the nerves. The huge dark trunks loom through the underwood in every direction, looking like a herd of elephants feeding in the jungle. As you examine the patch of sugar, the light of the lantern perchance falls into a yawning hollow in the side of the monster before which you are standing, failing to illumine the darkness or tell what may be concealed in its depths.

Snake Tree.

Large numbers of the old oaks are in every stage of picturesque ruin; the branches, broken and twisted by the storms of centuries, in the dim light seem to assume unearthly forms.

There is, I suppose, an element of superstition latent in every man's nature; and I own to a shudder when, in the gathering gloom of a wild autumnal evening, I perceived the group of figures on the summit of the tree which forms the subject of the following sketch, and recalled Dante's description of a forest in the Seventh Circle of Hell, where the trees were occupied by spirits:—

"Ere Nessus yet had reached the other bank,
We enter'd on a forest, where no track
Of steps had worn a way. Not verdant there
The foliage, but of dusky hue; not light
The boughs and tapering, but with knares deform'd
And matted thick: fruits there were none, but thorns
Instead, with venom fill'd * * *
* * * * * * *
* * * * * * *
On all sides
I heard sad plainings breathe, and none could see
From whom they might have issued. In amaze
Fast bound I stood. He, as it seem'd, believed
That I had thought so many voices came
From some amid those thickets close conceal'd,
And thus his speech resumed: If thou lop off
A single twig from one of those ill plants,
The thought thou hast conceived shall vanish quite.
Thereat a little stretching forth my hand,
From a great wilding gather'd I a branch,
And straight the trunk exclaim'd, 'Why pluck'st thou me?'
Then, as the dark blood trickled down its side,
These words it added: 'Wherefore tear'st me thus?
Is there no touch of mercy in thy breast?
Then once were we, that now are rooted here.
Thy hand might well have spared us, had we been
The souls of serpents.' As a brand yet green,
That burning at one end from the other sends

A groaning sound, and hisses with the wind
That forces out its way, so burst at once
Forth from the broken splinter words and blood."

INFERNO. Canto XIII. *Cary's Translation.*

Devil Tree.

EDWIN BIRCHALL.

October 4, 1870.

Entomological Notes, Captures, &c.

Description of the Larva of Vanessa Antiopa.—The head is wider than the 2nd segment and exserted; it is notched on the crown, and in addition to the scabrosity usual on the heads of Vanessa larvæ, it has about a dozen larger and rather salient papillaform warts: the body is of nearly uniform thickness, the 2nd segment being rather more slender than the rest, and beneath this segment, almost close to what may be called the chin, is a transversely oblong valvular opening, precisely similar to that which I have described in the larva of Vanessa Io. The body is armed with a number of rather long and very acutely-pointed spines, and is also beset with a number of soft flexible hairs. The spines, which emit lateral ascending hairs, are distributed thus:—on the 2nd segment none; on the 3rd segment four, two on each side; on the 4th segment also four; on the 5th, 6th, and 7th segments six, three on each side of each segment; on the 8th, 9th, 10th, 11th, and 12th, seven each, one being medio-dorsal; this is more erect, slenderer, and shorter than the rest, and stands rather in advance of the others; of the three lateral spines, on each side of each segment, the first, that nearest the middle of the back, is the longest and strongest; the 13th segment has four spines, arranged in a quadrangle and directed backwards. The colour of both the head and body is black, the latter having a gray tinge, owing to the presence of gray hairs; each segment, after the 3rd, has a conspicuous double spot of bright rust-colour; the ventral claspers are also bright rust-colour, and each is accompanied or surrounded by a blotch of the same colour at the base; the anal claspers are black, the tip alone being rust-coloured; the legs are black, corneous, and shining. I am indebted to my friend Mr. Doubleday for the opportunity of describing this larva from a continental specimen.—*Edward Newman.*

Argynnis Lathonia at Rainham.—During the second week in October my son took a very perfect specimen of Argynnis Lithonia, at Rainham, in Essex. I did not know the insect, and showed it to Mr. Newman, who has supplied the name. —*F. Venables.*

Epinephele Hyperanthus, with ocellated spots on the upper side.—With respect to Mr. Hudd's remark in your last number regarding this insect, I beg to say that on inspecting the three specimens in my cabinet, I find two answer your description; and in one the ocellated spots are equally matched on both sides of the wing. I hope next summer, as the insect is plentiful in this neighbourhood, to make more extended observations on this point.—*H. W. Livett; Wells, Somerset, November* 9, 1870.

Small specimens of Janira.—It may interest the readers of the 'Entomologist' to know that I have this season captured a remarkably small E. Janira, measuring only thirteen lines in expanse. It was taken in August, flying in a damp wood, where there would be little chance of the dryness of the season influencing its development. It is a male, in fair condition. Last year I met with a Plusia Gamma only twelve and a half lines in expanse.—*F. E. Harman; The Valletts, Whitfield, near Hereford, September* 28, 1870.

[The idea that dry seasons affect the size of Lepidoptera is not supported by observation, and is, at present nothing more than hypothesis.—*E. Newman.*]

Tithonus and Comma in Shropshire.—In the October number of your 'British Butterflies' you say that you have no record of the occurrence of Tithonus in Shropshire. I have, however, frequently seen it, and have caught several specimens near the village of Westfelton, about six miles from Oswestry, and about twelve or thirteen miles from Shrewsbury. I have also caught Comma at the same place, and a specimen was caught this year.—*E. R. Kenyon; October* 7, 1870.

Cœnonympha Davus, &c.—I see from your notice of Mr. Eedle's collection brought from Perthshire, that his specimens of Cœnonympha Davus are uniform in colour and want the eye-spots of the hind wings. Such is not the case with the Ross-shire specimens of that insect. I have a fine series taken on the next coast, with great variations in the colour; the white band and eye-spots of the hind wings being well defined. In the same district I have found Hipparchia Tithonus and Thecla Quercus.—*A. Davidson; Tarbert, Fearn, by Inverness, November* 12, 1870.

Liparis dispar.—In the matter of Liparis dispar allow me to say that while passing by coach the side of Loch Mara a larva fell from a tree on to my coat; I had no difficulty in recognizing it, as I had bred a number of them the preceding summer. This, I think, ought to set at rest the question whether L. dispar is *now* indigenous.—*Id.*

Depraved taste in Argiolus.—During July of the present year a drain, which was opened on our premises, attracted several fresh specimens of L. Argiolus. It was very interesting to watch them flying over the drain, sometimes alighting to sip the sewage, which they seemed to prefer to the flowers in the adjoining fields. Has this depraved taste been observed before in these pretty blues?—*C. J. Watkins; King's Mills, Painswick, Gloucestershire, November* 16, 1870.

C. Hyale at Dover.—Whilst staying at Dover during the month of August I succeeded in capturing three specimens of C. Hyale: on the 21st, 25th, and 27th of the month. These were, I believe, the only specimens taken at Dover this year; they were very abundant in 1868. C. Edusa was equally scarce, since I only captured a single specimen (August 30), somewhat worn, and saw a second one on the wing.—*G. H. Raynor; Bordyke House, Tonbridge, September* 26, 1870.

Deilephila lineata at Devonport.—I beg to inform you I have bred a specimen of Deilephila lineata this season from a caterpillar found in a field of mangold-worzel, near Saltash, Cornwall. I fed it on the broad-leaf plantain; it ceased feeding July the 12th, and the perfect insect emerged on the 11th of August. The caterpillar is about three and a quarter inches in length, the head is black, the horn red and pink; a black line runs the entire length of the back, about three-sixteenths of an inch in breadth, with transverse bars on each segment, extending about three-sixteenths of an inch, and near the same in breadth, at the end of which is a cluster of minute white dots in the form of a crescent, a narrow black line divides each segment; on the sides are a great number of minute yellowish dots disposed in rows; on the lower side, just above the legs, runs a distinct line of small dots, with a series of small crescents below; the sides have a yellowish green appearance; the belly is rusty black.—*William Hobbs; 15, Chapel Street, Devonport, September* 23, 1870.

Deilephila lineata in the Isle of Man.—While staying in the Isle of Man, and in company with Mr. E. Birchall, June 13th, I was fortunate in taking a female of D. lineata. It came to the flowers of Silene maritima, about twenty minutes to nine in the evening. Not having my net in readiness, Mr. Birchall kindly handed me his net, in which I secured the prize. Has the insect been taken in the island before? Can any brother entomologist inform me whether D. Galii will copulate in confinement?—*Thomas J. Roxburgh; Liverpool, November* 18, 1870.

Chœrocampa Celerio and Phlogophora empyrea at Battle.—While staying a few days with a friend of mine, Mr. Hayley, of Catsfield Place, near Battle, we were lucky enough to capture a specimen of P. empyrea on ivy blossom. In looking over some insects, captured during last year (1869), I found a fine specimen of C. Celerio, captured on the wing in the library. Also a specimen of S. Convolvuli, taken at rest in Catsfield church, in good condition.—*G. H. Raynor; Bordyke House, Tonbridge, November* 14, 1870.

Sesia Cynipiformis at Leominster.—While hunting last June among the beds of nettles in the course of the canal, near this town, I had the pleasure of capturing a fine specimen of Sesia Cynipiformis hovering over, and occasionally pitching on, the nettle flowers. I believe this to be a new locality for this insect; but although I hunted carefully for another specimen, and visited the spot several times during the summer, I failed to find any more.—*T. P. Lucas; Leominster, October* 17, 1870.

Lithosia pulchella in New Zealand.—I have been so busy since settling here, that I have been obliged to lay by my net altogether. The only thing entomological worth telling you is, that in October and November, 1865, I took three specimens of Lithosia pulchella, two of them in the house, at a lamp, and one flying about ten o'clock in the forenoon. One evening, afterwards, I saw hundreds of them on the wing about dusk; so that when I consider that I never saw the insect before nor since, we may conclude it is an insect of periodical appearance coming in profusion, and then disappearing for an unknown cycle of years.—*T. J. R. Oxley; Hope, near Nelson, New Zealand, July*, 1870. Communicated by Mr. H. J. Harding.

Variety of Cabera Pusaria.—A good variety of this common species was captured while flying round a gas-lamp at Sydenham Hill, on the 18th of August last. The wings of this specimen, instead of being white, are of a uniform lead-colour, without any traces of the customary lines; the abdomen alone possesses the tint of an ordinary specimen. Mr. Chitty, of 9, Wells Road, Sydenham, captured the insect; and I am pleased to add that Mr. Doubleday has approved the name.—*J. P. Barrett;* 33, *Radnor Street, Peckham, London, S.E.*

Phibalapteryx lapidata in Ireland..—Since I last wrote you, I have taken Phibalapteryx lapidata in other places besides the one I originally mentioned, always on what we call "mountain," but which is, in fact, high red bog, generally on the edges of the bog near reclaimed land: one specimen flew to a light in my dressing-room window, which is nearly a mile from any mountain land. I have only found it on my father's grouse mountains, at Glenmore, a range of about ten miles Irish; but, then, I have not looked for it elsewhere. I tried examining the herbage for a clew to the food-plant; but I think the female only lays seven or eight eggs, and they do not appear to adhere: after seven or eight days; they change colour from white to yellow. The plants on the mountains are so mixed up that, unless I found the eggs adhering, I should gain nothing; I would certainly try the young larvæ on coarse mountain grass or heather. Yesterday I was on the mountains, grouse shooting, from six in the morning until nine at night: I walked the whole time, except about ten minutes for luncheon, and I saw but one Lapidata, a laying female it appeared, while the dogs were on a set, and, to the infinite disgust of the gamekeepers, I gave my gun to be held, and made off after the little fly, as they called it. I observed the moth light upon a blade of coarse grass, off which I boxed it; it laid two eggs, which I have sent. I fear I have lost caste for ever in the eyes of my father's servants, although I returned to the dogs in good time and killed the grouse.—*S. Ratcliff; Fetherstonhaugh, Dublin.* Communicated by Mr. Marsden.

Dasycampa rubiginea, &c., at Plymouth.—I had the pleasure of taking D. rubiginea on the 1st of November at ivy bloom, and what an entomologist would have called an unfavourable night, with the moon shining bright, wind from the east, and heavy dew. I have also taken at ivy bloom, during the last week in October, H. croceago, X. semibrunnea, petrificata, &c.—*Geo. C. Bignell; 6, Clarence Place, Stonehouse, Plymouth, November* 4, 1870.

Deilephila Galii at Plymouth.—On the 2nd August I had D. Galii brought me, taken in a garden at the back of my house.—*Id.*

Larva of Deilephila lineata at Plymouth.—On the 29th July I had the larva of D. Lineata brought me, taken in a garden in the town (Plymouth).—*Id.*

Description of the larva of Xylina petrificata.—At the end of April last, Mrs. Hutchinson, of Grantsfield, Leominster, kindly sent me eggs of this species: they were oval in shape, grayish in colour, thickly dotted with purple; they hatched in about sixteen days, and the larvæ, when three or four days old, were very minute, and in colour uniformly white, but with a rather transparent appearance when seen through a lens. On the 24th of June, when a length of about an inch had been attained, I took the following description:—Of average thickness, and nearly uniformly cylindrical, with the segmental divisions conspicuous; head smooth and globular, quite as broad as the second segment; skin soft, and rather pulpy to the touch; the usual dots small, but distinct: general colour pale green, and the appearance of being powdered with whitish; head also pale green, variegated with whitish; a clear broad white stripe forms the medio-dorsal line; subdorsal lines also white but narrower, spiracular lines yellow and narrow; there is also a faint white dotted line on each side between the subdorsal and spiracular lines; spiracles indistinct, white encircled with black; legs green, tipped with shining black; belly and prolegs of an uniform dull green. Feeds on oak and lime; but from the gradual and mysterious disappearance of most of my larvæ, I suspect that, when the opportunity presents itself, one of its own living brethren is too tempting a morsel to be withstood.—*Geo. T. Porritt; Huddersfield, November* 10, 1870.

The Tsetse fly.—The meeting of members of the Natural History Association of Natal, held last evening, 30th May, 1870, was most successful. There was a large audience. Mr. John Robinson presided. Mr. St. Vincent Erskine's paper on the tsetse fly was very interesting, and combatted the popular idea that the bite of the tsetse fly was destructive to the life of certain animals, especially the ox, horse, and dog. Dr. Livingstone's statements on this point were severely criticised by Mr. Erskine, whose theory was that the deaths of the animals were to be attributed more to change of grass or climate than to the bite of such a small fly as the tsetse. Referring to Dr. Livingstone's assertion that the natives of the Matabele country held the belief that the tsetse fly destroyed their cattle, he said that natives of the west of Africa, in whose country the fly was to be found, and who could not keep cattle, did not attribute the destruction of their cattle to the fly. Mr. Morant's paper, on the Entomology of the Free State and Transvaal, was also very interesting, and gave a list of the butterflies and other insects which Mr. Morant noticed in those republics in certain parts of the year. A hearty vote of thanks was given to Messrs. Erskine and Morant for their very interesting papers.—'*Natal Mercury*' *of* 31*st May*, 1870.

[Having invariably maintained that the word *Tsetse* implied a disease rather than an insect, and was applied indifferently to all flies that settled on diseased cattle, or indeed on any cattle, and having incurred an overwhelming amount of ridicule for holding so heterodox an opinion, I am delighted to find the opinion held also by a resident, who has every means of obtaining the best information. I have always protested against the importation of a myth like the tsetse into the domains of science; the mixture of truth and fable in matters of science is always to be deprecated. The cholera fly and the Aphis vastator are banished from the domain of science; it is abundant time to banish their African congener.—*Edward Newman*.]

Lepidoptera of Kircudbrightshire.—I send you a digest of my doings this season about here, in case you may think it worth insertion in the 'Entomologist.' They were all captured within a radius of about four miles of my house, and all in Kircudbrightshire, and between the end of June and the middle of September:—

H. Semele. July. Abundant along the rocky coast.

C. Davus. July. Cloke Moss. Found the habitat too late to get good specimens.

V. Cardui. August. Not so abundant as last year.

A. Aglaia. July. Rather common.

A. Selene. July. Not very abundant.

A. Euphrosyne. July. Common.

P. Sylvanus. July. The only representative of the skippers seen.

A. Filipendulæ. June. Very local, but abundant where it occurs.

S. Populi. August. Larvæ. Very abundant on two small poplars.

C. Porcellus. June. Too late to get good specimens; two or three larvæ obtained.

M. Stellatarum. September. One larva.

I. Philanthiformis. July. Larvæ. Rather abundant in thrift along coast; was too late to get the imago, only finding one pupa, which was injured.

H. Velleda. June. Abundant.

H. Sylvinus. July. Not very common.

C. Furcula. September. Two larvæ. One on alder, one on aspen.

N. Ziczac. August. Three larvæ, on sallow.

L. Dictæa. August. One larva, on aspen.

L. Camelina. August. One or two larvæ.

P. Trepida. September. Two pupæ at foot of oaks.

C. Reclusa. August. Larvæ. Abundant on sallow.

P. Bucephala. August. Larvæ. Abundant.

D. Coryli. August. One or two larvæ on nut.

O. Antiqua. September. Larvæ. Abundant July and August; imago in September.

L. Complanula. August. One, at flowers.

S. Menthrasti. June. Not rare.

S. Lubricipeda. August. Larvæ.

L. Callunæ. July and August. Larvæ. Quercus, as yet, I have not noticed here.

D. Potatoria. September. One or two larvæ.

S. Pavonia-minor. August. One larva, Cloke Moss.

C. Spinula. June. One or two, mothing at dusk.

P. Lacertinaria. June. One, in a copse wood.

T. Batis. July. One or two, at sugar.

C. Duplaris. June. One, in a copse wood.

C. Flavicornis. July. Two, at sugar.

A. Psi. July. A few at sugar; larvæ abundant in July and August.

A. Ligustri. June. At sugar. Not rare; some larvæ from ash in August and September.

A. Rumicis. July. Common. Larvæ, August and September.

A. Menyanthidis. August. One larva, on sallow, Cloke Moss.

L. Conigera. July. Not rare. At sugar.

L. Comma. July. Rather common. At sugar.

L. Impura. July. Common.

L. Pallens. July. Common.

H. Nictitans. August. Abundant. At flowers.

H. Micacea. August. Not rare. At ragwort.
X. Rurea. July. One, at sugar.
X. Lithoxylea. July. Very common.
X. Polyodon. All summer. Swarming. Several dark varieties.
H. Popularis. July. Not common.
C. Graminis. July. Not rare. At flowers.
L. Testacea. August. Common.
M. Persicariæ. July. Common.
A. Oculea. All summer. Swarming, and very variable. At sugar.
M. Strigilis. July. Very abundant, variable.
M. Fasciuncula. July. Not common. At sugar.
C. Haworthii. July. One, Cloke Moss.
C. Cubicularis. July. Common.
A. Suffusa. July. Not very common.
A. Segetum. July. Common. Sugar.
A. Exclamationis. All summer. Swarming. At sugar. One or two almost black varieties.
T. Janthina. August. Not rare. At sugar.
T. Fimbria. August. One, at sugar.
T. Orbona. July. Swarming, not very variable.
T. Pronuba. July. Swarming, variable.
N. Augur. June. Common.
N. Plecta. June. Common. At sugar.
N. Brunnea. July. Not rare. At sugar.
N. Festiva. July. A few, at sugar.
N. Dahlii. July. Common. At sugar.
N. Umbrosa. July. Not rare.
N. Baja. July. A few.
N. Xanthographa. August. Swarming.
A. Lunosa. September. At sugar.—*W. Douglas Robinson ; Almorness Castle, Douglas, September* 15, 1870.

(To be continued.)

Captures near Gravesend.—The following are my best captures this season ; you can make use of any or all of them as you please. I regret I have allowed your kind requests to remain so long neglected, but I have been from home nearly a month, and have been obliged to neglect entomological pursuits, owing to more pressing business. Of butterflies worthy of notice I have met with :—

P. Daplidice. One splendid female, near Southend, in August: it was sitting on a plant of Reseda in a field of clover. I searched all the plants carefully for eggs, but without success.

A. Adippe. I captured a very perfect example of the variety called Cleodoxa in Newman's 'British Butterflies': it was entirely without the silver spots on the under side. I met with it in a large wood in Essex. The typical insect was abundant.

S. Convolvuli and D. Galii. Kent. Several specimens of both these insects have been brought to me; one Convolvuli, taken at Northfleet, laid five eggs. The larvæ of D. Galii have been taken in this neighbourdood pretty freely.

S. Ichneumoniformis. Essex. Common.

S. Culiciformis. One large specimen found on the pavement in Gravesend.

P. Globulariæ. Kent. Common on bloom of Echium.

N. Strigula. Kent. One beautiful specimen on trunk of a lime tree.

N. Hispidaria. Kent. Several.

B. Consortaria. Kent. Several.

H. Auroraria. Essex. Several beaten from heath.

A. Immutata. Kent and Norfolk. Beaten from willows. I bred a few from larvæ reared on Polygonum. Eggs laid, June 29; hatched, July 10; pupæ, July 30. The imago emerged, August 12 to 16.

A. Emutaria. Kent. Eight specimens. I considered this a true marsh insect, having, for several years, taken it on reeds only. Last year I found a cripple in the middle of a large reed-bed; as it was unable to fly it must have been bred on the spot. I was, therefore, surprised to beat a fine male from a hedge-row of Clematis, &c., in a very dry locality, more than a mile from water.

A. Ochrata. Essex. Scarce.

A. Rubricata. Norfolk. Abundant. I reared a few from eggs; they were not brighter than captured specimens.

A. Prataria. Kent. Common, but very local. From a brood of eggs I reared a dozen moths in September, but half the larvæ ceased feeding when half fed, and evidently mean to hybernate.

L. Purpuraria. Essex. Scarce. One female, taken

May 29, laid a few eggs, from which I reared eleven perfect and beautiful moths. I visited the locality occasionally till September, and captured several indifferent specimens, and obtained eggs. I unfortunately lost most of my last brood by accident. The males fly freely in the sunshine, and are soon worn; the females are more frequently found on the long grass, &c.

E. Unifasciata. Kent. Several worn specimens among Bartsia Odontites. I searched the plants in September, and found 150 larvæ, which fed up rapidly and disappeared the beginning of October. The bottom of the breeding-cage is glass, and the cocoons are thickly sprinkled on its surface; I can see that more than half are ichneumoned, the pupæ of the parasite having filled the larvæ almost to bursting, and are easily seen through the semi-transparent skin, looking like the links of a neatly-folded chain.

X. Scolapacina. Essex. At sugar.

M. Abjecta. Kent and Essex. Sugar.

A. Cursoria. Essex. Flying by day.

C. Sponsa and Promissa. Kent. Several at sugar.

A. Sulphuralis. Norfolk. Common in a rough field.

D. Luctuosa. Abundant everywhere in suitable localities round Gravesend. I found it from May till September.

H. Derivalis. Essex. Ten beaten from oak and hornbean. One laid a batch of eggs, which hatched and escaped.

O. Dentalis. Kent. Found several of the larvæ and cocoons on Echium when searching for another insect.

R. Sanguinalis. Essex. Several. They seemed attached to one large tuft of soft wavy grass. I could find none elsewhere.

S. Palealis. Essex. Twelve most lovely specimens. I met with this insect in the same place, in August, 1858, as recorded in the 'Intelligencer.'

P. Obductella. Norfolk. A few among Origanum.

P.S.—I bred on Friday a plume which, from the time of appearance and the unusual food-plant, I believe to be new to our lists. I shall be in London in a few days, and will bring it for your opinion. The larvæ fed on Bartsia, eating the flowers and unripe seeds; it was very light green and, from the tips of the hairs being lighter, had a hoary appearance.—*D. T. Button.*

THE ENTOMOLOGIST.

No. 86.] JANUARY, MDCCCLXXI. [Price 6d.

Description of the Larva of Tryphæna Curtisii.—I am by no means certain what is the natural food of this species; but in confinement it feeds freely on Plantago lanceolata (narrow-leaved plantain) principally during the night, resting in a perfectly straight position on the leaf-stalk during the day, or even concealed beneath the surface of the ground. The head is rather narrower than the 2nd segment, and is porrected in crawling on the same plane as the body; it is highly glabrous, and emits a considerable number of soft flexible hairs directed forwards; the face is flattish, and there is no perceptible notch on the crown: the body is almost uniformly cylindrical; the three thoracic segments are however decidedly more slender than the rest, especially when elongated in the action of crawling; they are also transversely wrinkled, each being divided into four sections, in addition to the fold or quasi-section which intervenes between each two segments; the 12th segment is dorsally elevated, and the raised portion terminates posteriorly in a square and sharply-defined truncature; there is a lateral skin-fold below the spiracle, but not very conspicuous; the anal claspers are stretched out behind when at rest, and extend decidedly beyond the anal flap: when annoyed the larva falls from its food-plant in a compact ring, and remains in that position a considerable time perfectly motionless: in this position the slender hairs scattered over the body become more perceptible, but are never very conspicuous; the skin is velvety. The colour of the head is a transparent palish umber-brown, but variegated and reticulated with rich sepia-brown; these darker reticulated markings form two quasi-crescents, the convexities of which are placed back to back on the middle of the face, and two other somewhat similar but smaller markings on the sides of the cheeks scarcely perceptible from above; the ocelli are of the same dark colour as these facial markings: the colour of the body varies in different individuals; it is generally umber-brown, with a slightly darker broad dorsal area intersected by a very narrow medio-dorsal paler stripe; the dorsal area is divided into compartments, corresponding with the segments, and each of these compartments is dilated before, contracted behind, and concave on the sides; each compartment is also margined by a paler line: the 1st, 11th, and 12th segments differ considerably from the rest; the 1st has a flattish rather glabrous and slightly darker dorsal surface bisected by a pale line continuous with the medio-dorsal stripe; the 11th has its dorsal compartment restricted and rather rounded behind, and its sides and posterior margin, except in the middle, deep sienna-brown; the same character, but more conspicuous, is observable of the 12th segment, the truncated posterior margin of which is very dark, and the dark colour is rendered still more conspicuous by a light rufous border; on each side is a lateral stripe, including the spiracles, which are white; the dorsal boundary of the side stripe is very vague, the ventral boundary more sharply defined, and rendered more conspicuous by its proximity to a pale lateral skinfold; the anal flap is decidedly darker than the ground colour; and, in addition to these more decided markings, every part of the dorsal and lateral surfaces is sprinkled over with dots and lines; the ventral surface, legs, and claspers are paler.

I am indebted to Mr. Norman, of Forres, for a liberal supply of the larva, which, it must be admitted, much resembles that of Tryphæna orbona; but that similarity pervades all the Tryphæna larvæ I have examined.

The perfect insect is admirably figured in Curtis's beautiful 'British Entomology,' fasc. 348, dated 1st March, 1831, under the name of Tryphæna consequa, or Bute Yellow Underwing, but, as it certainly is not the Noctua consequa of Hübner, I at once suggested that it should receive the name of the talented artist who described it, and who has figured it so beautifully. Mr. Curtis possessed but a single specimen, taken by himself on the heath at the back of Mr. Kean's house, in the Isle of Bute, on the 27th July, 1825. Mr. Norman has taken it more abundantly during the past summer, near his residence at Forres. Mr. Curtis describes it in these words:—

"Brown, palpi reddish, crown of the head pale; superior wings comparatively short, narrow at the base, and considerably broader at the apex, with the costa reddish; two pale strigæ towards the base, an oblique, oval, and an auriculate stigma, with pale margins and reddish centres towards the middle, beyond which are two pale sinuated strigæ, the nervures between them pale, and bearing a row of dots as well as the posterior margin: inferior wings orange, fuscous at the base, the nervures fuscous, a black fimbria, narrow at the anal angle, curved above and reaching the centre where it forms a crescent, the extreme edge indented and not touching the margin; abdomen cinereous; the sides and apex ferruginous."—*Curtis*, l. c.

Mr. Curtis, well aware of the similarity of this species to the familiar Tryphæna orbona, thus differentiates them:—

"That my specimen is distinct from our other species there is no doubt, for the superior wings are formed more like those of Cerigo texta, the stigmata are larger than in T. orbona, the fascia of the inferior wings is broader, and the superior margin beneath is black and not rosy; in colour it most resembles the N. consequa of Hübner (Noct. tab. 23, fig. 105); his N. subsequa is more like N. orbona."

In the 'Insect-hunter's Year-book' for 1870 I have taken considerable pains to differentiate this species from Tryphæna orbona, with which it may very excusably be confounded by those who do not possess a series of both. There are now in the possession of myself and others a great number of chrysalids, and, when they emerge, some of them will infallibly reveal their ancestry if they be really the descendants of Tryphæna orbona. I notice that the very variability of these two species has been urged as a plea for reuniting them as a single species; but this appears to me quite as cogent a reason for keeping them separate, since I have often observed that two cognate species may, and frequently do, exhibit an infinity of variations.—*Edward Newman*.

"*Ephyra strabonaria of Zeller*.—Intermediaire entre Punctaria et Trilinearia mais plus voisine de cette dernière: 25 mm. Ailes d'un carné-jaunâtre, teinté de rose chez les exemplaires frais, sans atomes. Les points des deux series ordinaires sont liés et forment deux lignes denticulées. L'ombre mediane est bien distincte, mais ne forme pas une ligne tranchée; alle passe, aux secondes ailes, sur un point cellulaire blanc, ovale, ocellé. Les dessins du dessous sont a peu près nuls. Le front est d'un brun cannelle très pâle. Les ailes ont la forme de Trilinearia — ♀ semblable."—*Guenée, Uranides, et Phalœnites*, tome i. p. 412.

During the autumn Mr. George Parry, of Canterbury, sent me for examination several specimens of the insect thus described by Guenée. Mr. Doubleday, having seen them, very decidedly pronounces them to be a second brood of Ephyra trilinearia.—*Edward Newman.*

Entomological Notes, Captures, &c.

Colias Edusa at Huddersfield.—A man named Bennett took a male specimen of Colias Edusa, at Shipley, near Huddersfield, during the present season. As the insect was one he was unacquainted with he put it away, and gave it to me, unset, in a lucifer-match box when I called on him some days ago. Its occurrence here is very rare; I know of no previous capture since 1859.—*Geo. T. Porritt; Huddersfield, December* 14, 1870.

Epinephele Hyperanthus.—I have been so much engaged lately I have been unable to find time to write you on the subject of Epinephele Hyperanthus. I hope next season to send you specimens, to convince you about the ocellated spots on the upper side of the wings of the female being "distinctly marked." The specimens at present in my cabinet are all old and faded, or I would have sent some now. Possibly I should not have said the markings were *quite* as distinct on the upper as on the lower surface of the wings had I taken the trouble to look at the specimens in my cabinet; but my remark was only made for the purpose of drawing your attention to what I imagined was an oversight on your part, and I did not at all think you would dispute my statement. I see my friend Dr. Livett, of Wells, has written (in this month's 'Entomologist') confirming my remarks, though, like myself, he is unable to send you fresh specimens in proof. If I remember rightly there is a fine series of varieties of this species in the British Museum collection; and I have no doubt, if you see them, you will find some of them distinctly marked on the upper side.—*Alfred E. Hudd; Stapleton Lodge, Stapleton Road, Bristol, December* 14, 1870.

Melanthia Rubiginata var. *Plumbata, &c.*—This species is very common, as I have caught three dark, two black, and one not quite black; I could have caught hundreds of the true one as they were so plentiful. I have only met with them in one place about here. I have also got a brownish yellow specimen of the large Emerald (G. Papilionaria) this year, on the 4th of July, hanging on the bough of a tree, at evening. A brother entomologist, at Bolton, told Mr. King, of London, and he said it was done with poisoning it; but I had no poison with me then, but had pinched it under the wings. It is not a faded specimen, as it looked quite fresh, and the antennæ and legs are the same colour. Last year I caught two of the Comma butterfly on the valerian and peaches. I have taken Agrotis saucia on ivy bloom, and A. suffusa this autumn.—*W. R. Kefford; Lathom Gardens, Ormskirk, Lancashire, December*, 1870.

Phibalapteryx conjunctaria, &c., near Newcastle.—The best of my captures during the past season was one specimen of Phibalapteryx conjunctaria (Polygrammata of 'British Moths,' 175, and 'Doubleday's List.'): I took the insect at Newbegben-by-the-Sea, during the last week of July, flying at dusk, near some swampy ground on the moor. In your 'British Moths' you name March and September to be the times of its appearance; probably it is only single-brooded in this part of the country. I saw, but did not capture, D. Galii flying on the 15th of July, much earlier than it has made its appearance in the south this year. Two members of our Club found larvæ on the coast, which are now in pupæ. About a dozen N. Elymi were taken in July on the coast, near South Shields, by Mr. Eales of that town. I have noticed the occurrence of a second brood of V. Urticæ this year: I found the small larvæ during the last week in May, and again, on the same bed of nettles, on the 9th of August, nearly full fed; the butterflies were on the wing late in September. The Naturalist's Field Club, of this town, had a day at Castle Eden Dene in the beginning of June: I only succeeded in capturing one A. Blomeraria. I was afterwards told we were a fortnight too early for it. Two or three

S. lunaria were also taken by other members of the Club.—*W. Maling; 15, St. Mary's Terrace, Jesmond Road, Newcastle-on-Tyne, December* 5, 1870.

Chariclea Delphinii in Norfolk Crescent.—About six years ago I took a Noctua in the garden of Norfolk Crescent, which order of insects I do not collect. On showing it to a collector he told me it was Chariclea Delphinii, and asked me to forward the fact to your well-known magazine.—*T. A. Taylor; 23, Norfolk Crescent, November* 30, 1870.

[Probably introduced by the transmission of European plants to some nursery garden.—*Edward Newman.*]

Strychnia and Camphor Crotchets.—A few crotchets have possessed me, which I much desire to have either dispelled or confirmed by yourself or some of the other entomological luminaries that avail themselves of your pages. Crotchet 1:—Why has not strychnia been adopted as a killing agent for lepidopterous insects? I propose to use a solution of it in spirit, for the purpose of killing insects by the usual thoracic stab: the wonderful power of this poison to destroy insect-life is evidenced by its extensive use in the very diluted form of fly-paper; but my crotchet is that, by its diffusive power, this poison, when thus introduced into the thorax of a living insect, would effectually ward off all future attacks of mites or other cabinet-pests from any portion of a specimen so killed, without recourse being necessary to bichloride of mercury, camphor, oil of cajeput, or any of the other preventives usually adopted. I have heard it asserted that the thousandth part of a grain of strychnia will kill a frog; if so, who can calculate how small a portion will kill or disagree with a mite. Doubtless the consequent tetanus or extreme rigidity of the specimen may be raised as an objection to this mode of killing; but immediate setting, the laurel-jar, or the damp-sand box will meet that difficulty; and if my crotchet of the diffusive power of the poison be well founded, it is worthy of a trial. Crotchet 2:—Grease, although the delight of cooks, is a terrible drawback to the pleasures of an insect collector; and I cannot but think the remedies hitherto proposed almost transcend the disease. It has occurred to me that a small orifice might be made in the abdomens of oleaginous species, and some chemical absorbent applied so soon as the insects leave the setting-board. I am trying experiments in this direction, and I should wish for assistance from some of your scientific contributors; all will admit that, in such case, "prevention is better than cure." Crotchet 3:—Might not camphor, in our cabinet-drawers, be superseded by a tuft of cotton-wool with a drop or two of the oil of cajeput on it: the odour of this essential oil is less disagreeable, and, I believe, is quite as efficient as camphor; it is less fugitive; and last, but not least, costs a good deal less than camphor.—*S. Radcliff Fetherstonhaugh; 17, Eccles Street, Dublin, December* 7, 1870.

[Crotchet 1:—With regard to strychnia I doubt whether there is any advantage in employing it, when our means of killing insects are so perfect and our choice so extensive. A glance at Mr. Greene's invaluable 'Companion' will satisfy every enquirer on this point. Crotchets 2 and 3 I combine, because the subject of discussion seems, of necessity, one and the same. Camphor and grease are inseparable, cause and effect: you cannot use camphor without having grease: it is better to have neither. On the continent camphor is rarely used; in England, Mr. Doubleday's collection, the neatest and cleanest I have ever seen, is *never* camphored: I should as soon expect to see him pour train-oil into his drawers as introduce a lump of camphor. The collection under my own care is never camphored *now;* but it was formerly, as sodden patches of grease in the drawers abundantly testify. I assume that camphor is intended as a preventive against the attacks of Acari, Psoci, Ptini, and Tineæ, all of which delight in the mortal remains of insects; but I am not, at present, a believer in spontaneous generation. I do not see how a brood of mites can enter and establish themselves in my drawer of Notodontæ, *sponte sua,* any more than a herd of elephants can, *sponte sua*, make their appearance in my cockney garden, where they would, I think, be inconveniently crowded, should such a spontaneous generation take place. This is one of *my* crotchets, although I am fully aware the "British Association for the Advancement of Science" bids fair to rule otherwise. Well, then, not believing the tribe of mites can come of their own accord, I take as much care as I can not to introduce them by any act of my own. Supposing some kind entomologist makes me a present of insects from a *mitey* collection I transfer them, box and all, to the oven, and allow them to remain there in quarantine until all chance of communicating the disease has been baked out. In my cabinets, constructed by Benjamin Standish on an antediluvian plan of my own, there is a cavity all the way round, technically known as a camphor-cell, and camphor it formerly contained; but when it became manifest that camphor was neither ornamental nor useful,—in fact, that it was highly deleterious to Lepidoptera, —camphor was ejected by a summary process, and the cells stuffed full of calico-rags, on which benzole is occasionally poured. I have no objection to cajeput, and the scent is more pleasant than that of benzole; but the effect of cajeput on a living Atropos pulsatorius is less rapid. Between the camphor era and the mercury era Mr. Doubleday always used oil of cajeput, but now he invariably touches the underside of an insect with a weak solution of bichloride of mercury in alcohol: this process effectually prevents grease, mites or mould. In using this solution some care is requisite that it be not made too strong, for this is possible, since the insect may be disfigured by a slight change of colour or by a crystallized coating of the bichloride. In order to test the strength of the solution a sheet of black or dark paper should be at hand, and a portion of the solution laid on it with a camel's-hair brush; if there appears the least coating of white on the paper add more alcohol, and continue adding and testing the solution until it will dry and leave no mark whatever: it is then fit for use. I shall be very pleased to receive and to publish the opinions and experience of others. —*Edward Newman.*]

Lepidoptera of Kircudbrightshire (continued from p. 220).

X. Cerago. August. Common.

X. Silago. August. One, by beating.

X. Ferruginea. September. Not common.

C. Trapezina. August. Common.

D. Capsincola. July. Larvæ. Abundant.

P. Chi. August. At rest, and at sugar. Not rare.

A. Aprilina. September. Pupæ. Abundant at oak, always near surface.

P. Meticulosa. July. Common.

E. Lucipara. July. Not common.

A. Herbida. June. One, by beating.

A. Nebulosa. June. Common. At sugar.

H. Dentina. June. Not rare.

H. Oleracea. June. Common.

H. Pisi. August. Larvæ. Never on bracken; on sallow, broom, sedge, grass.

H. Thalassina. June. Common.

C. Umbratica. July. Not rare.

A. Myrtilli. June. One, flying over heather.

H. Uncana. August. Cloke Moss. One, too late to be good.

P. Chrysitis. August. One or two, at flowers.

P. Iota. August. One, at flowers.

P. Gamma. August. Common.

G. Libatrix. August. Not rare. Larvæ, on aspen.

A. Tragopogonis. July. Common.

M. Typica. July. Common. At sugar.

M. Maura. July. Common. At sugar.

E. Mi. August. The larva has a very queer appearance when at rest.

Among the Geometræ I did but little. The following are a few of my captures:—

U. Sambucaria. July. Not rare. At dusk.

M. Margaritaria. June. Common.

B. Repandaria. July. Common.

P. Cytisaria. September. Young larvæ, on broom.

A. Ulmata. June. Not rare.

E. Pulchellata. August. Larvæ, on foxglove.

M. Rubiginata *var.* plumbata. July. One.

E. Mensuraria. August. Common.

E. Palumbaria. August. Common.

A. Plagiata. August. Common.

C. Obliquaria. September. Larvæ, not rarely on broom, require patient beating; began turning about the 7th September.

O. Chærophyllata. July. Common.

I gave but little attention either to the Pyralites, and so only took a few.

H. Nymphæalis. August. Not common. Cloke Moss.

H. Stagnalis. August. Not common. Cloke Moss.

B. Urticalis. June. Common.

S. Ferrugalis. August. Not common.

H. Nimbella. August. Larvæ. Abundant, on camomile, near the sea.

C. Culmellus. July. Common.
C. Pascuellus. July. Common.
C. Hortuellus. July. Common.
C. Tristellus. July. Common.
C. Pinetellus. July. One, at light.
C. Perlellus. July. Common.—*W. Douglas Robinson; Almorness Castle, Douglas, September* 15, 1870.

Annual Exhibition of the Haggerstone Entomological Society.

A most interesting exhibition of insects took place at the above society's room on the evenings of the 17th and 18th of November last. Six o'clock was the time announced for the opening of the exhibition; but such was the interest evinced on both evenings, by persons desirous of inspecting the entomological treasures, that some time before that hour visitors began to arrive, and, judging from the crowded state of the room during the two exhibition-nights, it is not at all improbable (should these annual exhibitions be continued) that, at no very distant date, a much larger room will be required, in order to give sufficient accommodation to the visitors, the exhibition this year far excelling those of the two previous years, both as regards the rarity and beauty of the insects shown, the three tables arranged down the centre of the room being entirely covered with glass-cases and boxes containing insects of all orders. As might have been expected the Macro-Lepidoptera were the more numerously represented; the cases of Messrs. Barlow, Bryant, Bush, Clarke, Davis, Harper, Jackson, Lomier, Meek, Raine, Smith and others contained many beautiful and well-set insects. Among the rarer Lepidoptera submitted to the inspection of the visitors were Pieris Daplidice, Argynnis Lathonia, Vanessa Antiopa, Lycæna Acis, Sesia chrysidiformis, S. Philanthiformis, Ophiodes lunaris (the second known British specimen, and captured by its owner, Mr. Smith, at West Wickham Wood, in 1861), Pachnobia alpina, Notodonta bicolor, Xylina Zinckenii, Dianthœcia capsophila, D. irregularis, D. Barrettii, Lythria purpuraria, Agrophila sulphuralis, Noctua ditrapezium, P. obductella, Dicrorampha flavidorsana, and many others. Many beautiful varieties were shown: those of Argynnis Adippe, Abraxas grossulariata, Venilia maculata, and a remarkable variety of Ypsipetes elutata, captured in Scotland, being the most conspicuous. One specimen of Vanessa Atalanta was exhibited, in which the butterfly possessed the head of the larva, the insect in all other respects being normal. The cases of preserved larvæ, exhibited by Messrs. Clark, Davis, Lomier, and Raine gave much satisfaction; the contents of Messrs. Clark and Raine's cases were highly interesting and instructive, exhibiting as they did the whole economy of their insect occupants.

The Micro-Lepidoptera were represented by Messrs. Eedle, Gates, Healy, and Smith, Mr. Eedle exhibiting many beautiful Tortrices and their varieties. In representing the Tineina Mr. Healy showed a book-box, in which were contained representatives of every family and almost every genus of the Tineina, together with a number of Coleophora cases.

The respective orders of Coleoptera, Hymenoptera, and Diptera were represented by the exhibitions of Messrs. Healy, Stoay, and Lomier. Mr. Healy exhibited examples of the various Tenthredoes he had captured during the past two seasons; also a book-box containing the life-histories of nine leaf-mining Micro-Hymenoptera, namely:—Phyllotoma Tormentillæ, P. melanopyga, P. mellita, P. microcephala, Druida parviceps, Fenusa pumila, F. fuliginosa, F. Ulmi, and F. pygmæa, showing at a glance the economy of each species. Mr. Lomier's Hymenopterous and Dipterous specimens occupying five cases; all the insects in the seven boxes containing Hymenoptera and Diptera, having their Latin names attached to them.

Mr. Cooke, of Oxford Street, kindly lent the Society some splendid specimens of exotic insects, the extreme beauty of the butterflies putting the lady visitors into quite a flutter of delight. To suit all tastes a few cases, of what is known as Ornamental Entomology, were hung on the walls of the Society's meeting-room. The exhibition passed off in a most quiet and orderly manner, and, in spite of the room being at times inconveniently crowded, not an insect received the slightest injury.

Extracts from the printed Proceedings of the Entomological Society, November 7 and 21, 1870.

Deilephila Galii and Chœrocampa Celerio.—Mr. M'Lachlan exhibited coloured drawings by Mr. Buckler of the larvæ of Deilephila Galii and C. Celerio. Of the former no less than sixteen different varieties were represented, all found during the present year.

Nonagria brevilinea.—Mr. Bond exhibited specimens of Nonagria brevilinea, of which a dozen were taken by Mr. G. H. King, at sugar, in the first week of August, 1870, at Horning Fen, Norfolk. The hitherto unique specimen was captured by Mr. Fenn at Ranworth, on the 4th of August, 1864.

[Nonagria brevilinea is figured at p. 271 of Newman's 'British Moths,' from Mr. Fenn's specimen, taken 4th August, 1864. I may add that my friend Mr. Doubleday has seen Mr. King's more recent specimens, and is unable to refer them to any previously described species.—*Ed. of 'Entomologist.'*]

Leucania albipuncta.—Mr. H. Vaughan exhibited Leucania albipuncta from Folkestone; and two remarkably dark varieties of Tryphæna orbona, from Mr. Norman, of Forres.

[Leucania albipuncta is figured and described at p. 475 (No. 438*) of Newman's 'British Moths;' and three specimens are mentioned as having been taken in England: the *first*, at Folkestone, on the 15th of August; the *second*, in the second week of October, at the same place; and the *third* was obtained by the late T. H. Allis, of the Yaxley collectors. The dark variety of Tryphæna orbona, so called, is the Tryphæna consequa of Curtis, the Tryphæna Curtisii of Newman: the larva is described at p. 223 of this number of the 'Entomologist.'—*Editor of 'Entomologist.'*]

Meloe rugosus.—Mr. F. Smith, referring to his previous remarks on Meloe rugosus (Proc. Ent. Soc. 1869, p. xx.), mentioned that he had again visited Prittlewell this autumn, and taken twenty-five specimens of this beetle; they were found under the herbage, and never came into daylight, only the tip of the abdomen of the female being visible; the males appeared to fight furiously with one another, not only when in confinement, but in a state of nature; most of the females were full of eggs, and Mr. Smith placed two in a flower-pot, in the hope of breeding the species; instead of depositing eggs, they had burrowed into the earth and there remained, so that it became a question whether they do not hybernate in the ground, and lay their eggs in the spring, at a time when there would be a better supply than in the autumn, of eggs and larvæ of the Anthophora. Prof. Westwood said both sexes of Meloe violaceus were found in the spring; and suggested whether these had hybernated underground. Mr. Pascoe mentioned that near Narbonne he had once seen a dozen specimens of Meloe maialis impaled on Cactus opuntia, and as they were quite uninjured except by the spines of the Cactus, the impalement could not have been the work of shrikes.

Anobium paniceum.—Mr. Dunning exhibited Anobium paniceum, both larva and imago, living in and consuming Cayenne pepper; and read the following note respecting it:—"In Kirby and Spence (Introd. i. pp. 196, 199, ed. 1843) it is mentioned that Anobium paniceum has been known to consume Cayenne pepper. On the 5th April, 1847, Mr. W. W. Saunders exhibited to this Society a bottle of capsicum from Bombay, which was greatly infested by Lasioderma testaceum; and it is added when Kirby and Spence stated Cayenne pepper to be subject to the ravages of Anobium paniceum, that species was 'probably mistaken by them for the former insect, which it greatly resembles.' (See Proc. Ent. Soc. 1847, p. viii.) It is clear that this passage means the reverse of what is said—that Lasioderma was mistaken for Anobium, not Anobium for Lasioderma. The authority for Kirby and Spence's statement is Mr. Raddon, who, on the 1st of January, 1838, exhibited to this Society 'a quantity of Cayenne pepper, in which a number of specimens of Anobium paniceum had been reared.' (See Proceedings, p. lxi.) I have now the pleasure of exhibiting larvæ and beetles in Cayenne pepper, forwarded to me in August from Woolston, near Southampton; they were described as 'sent over in some Cayenne pepper, and, much to the disgust of the village grocer, they bred and multiplied, the beetles boring holes in the drawer in which the pepper was placed, previous to the discovery of the inmates.' Notwithstanding the doubt expressed in 1847, I venture, in corroboration of Mr. Raddon's observation, to exhibit these beetles as Anobium paniceum."

[Anobium paniceum is figured, both in its larval and perfect state, at p. 162 of the 'Entomologist' for September, and some details given of its injurious effects on tea. The grubs were found, immediately the chests were opened, upon arrival: the package consists of a wooden exterior, inside of which is a leaden case, in which the tea is put and soldered down, and on the top of the tea, where the lead is soldered, there is a covering of paper: when the lead is cut open the grubs are found adhering to the paper and in the tea. Hundreds of chests have been found, during the past year, to be infested with this grub.—*Editor of 'Entomologist.'*]

Chlorops lineata.—Mr. Bond exhibited specimens of a small Dipterous insect, Chlorops lineata, and read a letter respecting it from Mr. J. Brown, of Cambridge. In the month of September a room, in the Provost's Lodge at King's College, was found "literally swarming with them; the ceiling and windows were covered; there must have been millions of them:" they were said to occur regularly every season, and to have been noticed by the late Provost, Dr. Thackeray (who died in 1850). Mr. F. Smith mentioned that he had received half a dozen communications during the autumn respecting swarms of this insect. Mr. Stainton enquired how and why it was that an insect which feeds on grasses or on vegetable substances is found in houses? Prof. Westwood thought the long hot summer and dry autumn might account for the unusual prevalence of this species during the present year; as to its getting into houses, he thought it was with a view to hybernation. Mr. Jenner Weir thought it was only for temporary shelter, on the first approach of cold weather.

Cynips Renum.—Mr. Albert Müller exhibited some reniform spangles on the under side of oak-leaves, found near Shirley, on the 16th October last, and produced by Cynips Renum (Hartig, M.S.): also pea-galls (about seventy-five in number) of Cynips agema, on the under side of the leaves of an oak seedling of two or three years' growth. Mr. Müller observed upon the fact of a Cynips attacking so young and healthy a plant.

Blennocampa Cerasi.—The Secretary read letters from the Rev. W. H. Wayne, of Much Wenlock, Shropshire, respecting the injury caused in July last to his plum, cherry, and pear trees by a small gelatinous grub, doubtless Blennocampa Cerasi (Tenthredo Cerasi, *Linn.*). It was first observed three or four years since in small numbers on a plum tree; in 1869 they caused the fall of nearly all the leaves of a pear tree, and the total ruin of the fruit; in 1870 two large pear trees were totally spoilt, and not only pears, but large crops of plums and cherries were rendered worthless.

[Although I suggested in the 'Field' newspaper that this insect was the Blennocampa Cerasi, I expressed a doubt, because I had not succeeded in breeding the perfect insect. I assume Mr. Dunning has been more fortunate, or he would scarcely use the word "doubtless."—*Editor of 'Entomologist.'*]

Female of Psyche reticella.—Mr. Bond exhibited both sexes of Psyche reticella (*Newman*), taken near Gravesend in 1870, by Mr. Button, the female being now for the first time known: in colour it is quite different from the female of any other British species of Psyche, being of a clear yellowish horn-colour, with bands or rings on the body of a dark vandyke-brown or nearly black; in fact, it is very similar when alive to a small larva of Euchelia Jacobææ, but after death it becomes nearly black.

Acidalia strigaria, n. sp., *and P. obductella.*—Mr. Bond also exhibited Acidalia strigaria, *Hubn.*, from Gravesend, a species new to the British list; and Pempelia obductella, *F. v. R.*, from Norfolk; these were also taken by Mr. Button during the present season.

Wasp's larvæ and pupæ destroyed by a Dipterous Parasite.—Mr. F. Smith exhibited some comb from a wasp's nest sent to him in October from Gloucestershire, the larvæ and pupæ in which had been destroyed by a Dipterous parasite, Phora florea: on a single larva or pupa of the wasp, for both were attacked indiscriminately, there were in some instances twelve or fourteen larvæ of the Phora, and the whole inside was consumed, leaving a mere shell, like the cast-off skin of a shrimp; out of 200—300 cells, not more than a dozen wasps escaped. Mr. Verrall mentioned that he had once put a hornet in a box, and on looking at it after a considerable time, found four or five specimens of a Phora had emerged; so that all three stages of larva, pupa and imago seemed to be liable to the attacks of Phora. Bouché also had recorded the breeding of Phora from a species of Crabo.

Phlœotribus Oleæ near Halifax.—Prof. Westwood mentioned that he had recently been breeding in numbers the continental Phlœotribus Oleæ from an ash tree growing near Halifax. The tree, however, was imported from France, so that the beetle could not yet be regarded as British, though it would doubtless become naturalized here. He had dissected it, and found that it really belonged to the Tomicus group.

Ægosoma scabricorne.—Mr. Müller exhibited, in spirits, a full-fed larva of Ægosoma scabricorne: and a piece of the bark of a lime tree, showing the exit-hole of the imago. On St. Peter's bastion at Basle there were formerly some lime trees, and on the 8th of March, 1868, one of the old trees was blown down during a hail-storm; the larvæ thrown out of the shattered trunk were picked up by Herr Stehelin Imhoff, and that exhibited was one of them. In the spring of 1869 all the trees were felled, and in one, of much smaller size than that blown down in 1868, were a considerable number of the larvæ in all stages of development. The larva is of the usual Prionid form, and is described by Mulsant in Ann. Soc. de Linn. de Lyon for 1855, reprinted in his Opusc. vi. 46. The habit of the beetle was to fly in the twilight, and rest during the day on the bark, by preference in a cavity sheltered from the sun: it occurred in July, August, and September: in July, 1865, Mr. H. Knecht took thirty-eight specimens at Basle; in August, 1866, twenty-five specimens; whilst in 1868 only a single specimen was captured, on the 8th of September. At the same spot, Osmoderma Eremita occurred both in 1865 und 1866; and in the latter year, Aromia moschata was plentiful.

Epinephele Tithonus and H. Comma in Shropshire.—Seeing a statement of yours, in your 'British Butterflies,' that you had no record of E. Tithonus in Shropshire, I beg to say that I have taken it here, round Shrewsbury, the last four or five years in great plenty; and last year it absolutely swarmed here, as it did also the preceding year. With respect also to Comma I caught several specimens in 1864 and 1865; since then I had not seen it till this year, when I took three very fine specimens, and saw several others: two of the specimens were taken on July 6th and September 24th respectively, there being several fine warm days of sunshine at the date.—*George W. Oldfield; Shrewsbury, December* 19, 1870.

THE ENTOMOLOGIST.

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Notes on Gall-makers and their Parasites. By HENRY MONCREAFF, Esq.

[THIS paper has been in my hands ever since September last. I thought it best to wait until Mr. Walker had fully determined the species. With his usual kindness he has now done this, and his notes are incorporated in brackets. Mr. Walker has written on the same subject in the January number of the 'Zoologist,' S. S. 2429: his paper is one of the most valuable contributions to Entomology that has been published for many years. He enters fully into the question whether these internal-feeding larvæ can possibly be phytophagous at one period and carnivorous at another; and alludes to the suggestions thrown out by American entomologists, and also gravely considered by some of our best English entomologists, whether many of the Hymenoptera, long supposed to be parasites on gall-makers, are not really themselves the gall-makers.—*E. Newman.*]

I send for your acceptance parasites from several galls, &c.

No. 1. From stems of Festuca ovina: these parasites are very abundant. I have not yet reared the gall-maker. The galls on this grass are of two forms: the first very elongated —from this I have reared nothing but parasites; the second more rounded. In one of the latter I have detected a Cynips (?) larva: it will be curious if it should turn out that the ravages of the parasite cause the galls containing them to assume a different shape.

[Decatoma mellea of Walker, and Pteromalus fulviventris of Walker, both in abundance; and one specimen of Pteromalus Festucæ, *n. s.*, were reared, by Mr. Moncreaff, from stems of Festuca ovina.]

No. 2. From imbricated galls of Triticum repens (var. β. of Hooker & Arnott). The maker of this gall will also turn out to be a Cynips, I think, from what I can see of the larva.

I only discovered this gall a few weeks since; and have not, as yet, reared the gall-maker: it, no doubt, escapes late in autumn or in early spring.

[The insects produced were Isosoma hyalipennis of Walker and Bracon tenuicornis of Wesmael.]

No. 3. From boat-shaped galls, on the leaves of Prunus spinosus: in one of these I detected the dead larva of a Cecidomyia (?); the live ones had, no doubt, gone to earth to undergo their final change.

[Callimome macropterus of Walker was reared by Mr. Moncreaff from boat-shaped galls, on Prunus spinosus, probably made by a Cecidomyia.]

I have also reared out of the galls on Plantago maritima, Baris laticollis; from galls of Plantago lanceolata, Mecinus pyraster; from root-galls (?) of Sisymbrium officinale, Baris —— (?): there are hymenopterous parasites on all these to come out.

I send you specimens of the imbricated galls of the couch-grass, and galls of Plantago maritima. I shall be obliged if you will authenticate the *species of grass* for me, for I think that, if I am correct in the species (Triticum repens), it will eventually turn out that the galls exhibited at the meeting of the Entomological Society (from Ammophila arundinacea, collected by Mr. J. Traill, at Aberdeen) are made by the same species of gall-fly; and I do not think it is likely it would choose different grasses.

[The grass is Triticum repens.—*E. N.*]

Life-history of Mixodia Hawkerana. — The north-west corner of Hayling Island is a low-lying sandy flat, relieved at its western extremity by a few rather elevated sand-hills; and here, besides many other plants of great interest to the botanist, grows the sea-spurge (Euphorbia paralias) in great profusion. A space of about a mile in length and of varying breadth is thickly and most luxuriantly covered with it, although it grows in the bare sand. It is shunned by all animals, for the intense acrid juices render it totally unfit for food; and as its flowers produce no honey it is equally deserted by the Hymenoptera. I have for several years carefully searched among these plants for the larva of

Deilephila Euphorbiæ, but without success, never having seen the least trace of it. In fact I have found it to be deserted by every creature, with the exception of a small Tortrix-like larva, whose history I hear is not commonly known, and for that reason the following life-history may not be uninteresting to your readers:—The egg of Mixodia Hawkerana is scale-like, about half a line over, very pale brown in colour, and the surface of the shell is closely granulated. In April, May and August the egg is laid, in most instances singly, on a leaf of the Euphorbia; and in eight days the young larva emerges from the shell, and commences at once to eat its way through the leaf to the stem of the plant. As it goes on feeding, it separates leaf after leaf from their basis, and fastens them closely together by silken threads, and so forms for itself a tunnel, closed at the bottom but open at the top, and in this it remains feeding, quite concealed, until it is full grown. It is then about eight lines in length; colour of the head pale brown in front, darker on the crown; a delicate black V-like mark springs from the centre of the head and ends on each side of the mouth; plate on 2nd segment dark umber-brown, pale in front, very glaucous, divided down the centre by a milk-white dorsal line; body stout, tapering to each end, greenish brown in colour; on each segment are about ten black spots, from each of which grows a single hair; legs and claspers light green, striped with black. When the larvæ are about to change they spin close silken cocoons in their tunnels, and turn to pupæ there. In June the imagos are on the wing, and may be seen by hundreds at dusk flying about the spurge. A portion of the second brood appears in autumn, but the greater part of them hybernate in the larva state, in cocoons, on their food-plant. In April and May the larvæ are mostly found among the seed-umbels, and this is no doubt owing to the rapid growth of the plant breaking up their domiciles and forcing them upwards. In autumn and winter the larvæ are easily detected by the connate appearance of the tops of the spurge. In some seasons the larvæ may be found feeding from April to November. The spring brood is easily reared: gather the infested tops when the larvæ are nearly full fed, place the tops in a glass-covered flower-pot, and leave them until the imagos emerge in summer. — *Henry Moncreaff; Southsea, January* 16, 1871.

Entomological Notes, Captures, &c.

Satyrus Tithonus. — The occurrence of this species in Ross-shire is so startling that I venture to ask if Mr. Davidson is quite sure he has made no mistake. The most northerly localities hitherto recorded are Kirkcudbright, where Mr. Robinson (Entom. iv. 17) states it to be common, and Northumberland, where it seems to occur pretty regularly. Its occurrence in Shropshire is mentioned by Mr. Barrett, who found it at Troubridge; and Mr. Andrews, who took it at Newport.— *H. Jenner-Fust, jun.; Hill Court, Berkeley, January* 1, 1871.

Thecla Quercus. — Ross is a new locality for this species also, which has however occurred as far North as Argyleshire and Perthshire. I shall be very glad of any confirmation of Mr. Davidson's statements as to the occurrence of this species and S. Tithonus in Ross.—*Id.*

Food of Calocampa exoleta. — I bred last autumn a fine specimen of Calocampa exoleta, from a larva that I found feeding on Eryngium maritimum. Strange food for this species, is it not?—*H. Moncreaff; Southsea, January* 16.

Notes on the Food and Habits of the Genus Eupœcilia.— At page 158 of the 'Entomologist's Monthly Magazine' (No. 79) a most interesting article is commenced by our friend C. G. Barrett, upon the habits and food-plant of Eupœcilia Degreyana. He says, "Taking into account the usual habits of the larvæ of the genus, I feel no doubt that in this species it feeds in the seed-head of the plant; it must be confessed, however, that I have several times searched for the larva without success." Here our friend implies that the usual habit of this genus, as arranged in our books at present, is to feed in the seed-heads of flowering plants; and that some species do so is well known, but perhaps—nay, I feel certain—it is not so well known that there are other species in this genus at present which are so far from feeding in the seed-heads, that their habit is to feed upon the roots, one eating into the root, another eating under the cuticle near the crown, whilst a third eats much deeper down the root. It appears to me just possible that the idea that the genus fed exclusively in or upon seed-heads may have prevented our friend searching in quite as likely a place lower down the plant. I pen this note to prevent a possibly erroneous idea misleading other friends in the search for the larvæ of the little-understood genus Eupœcilia. — *C. S. Gregson; Fletcher Grove, Edge Lane, Liverpool, January* 15, 1871.

Gelechia confinis of Stainton.—On perusing the 'Entomologist's Annual' for 1871 (page 98) I find an insect reported as a "new species in 1870," under the above name, which is evidently Gelechia stolidella of Gregson, published in the Rev. F. O. Morris's 'British Moths,' plate 108, fig. 1, and drawn from my Manx specimens: this species has long been separated from its congeners in my collection, and English specimens before me do not differ from the Manx ones. It is not pleasant to have so soon to destroy a part of the "very little work" which, according to the 'Entomologist's Annual,' has been done in Lepidoptera during 1870; but I feel sure I shall not be blamed for calling attention to this little oversight of work already done.—*Id.; January* 21, 1871.

Peronea proteana of Herrich-Schæffer.—From the remarks on this species at page 92 of the 'Entomologist's Annual,' one would be led to believe we were just on the point of another muddle; but from my experience in breeding this group I feel I shall not have to add the proposed new name, —only to decide "which is what:" I have bred hundreds of the Peronea potentillana of Cooke from Comarum and Fragraria, yet never could separate the larvæ, or see them into ought else.—*Id.*

Is it possible to Drown a Fly?—Many persons, on reading the title of this letter, will be apt to exclaim, What a very stupid question! Nevertheless it is the logical sequence of some remarks which I find in a communication of Science-Gossip, on "Flies in Liquor," in which it is asserted, on the authority of Doctor Franklin, that some flies which had been drowned in a bottle of Madeira wine sent from Virginia to England, on being placed in the sun, revived and flew away. It appears that the flies must have been in the wine many months, and on the bottle being opened three fell into the first glass filled: these were exposed to the sun on the sieve which had been used to drain the wine from them, and in less than three hours two of them by degrees began to exhibit signs of life, and soon afterwards flew away. The Rev. Mr. Kirby says that "many have recovered after having been twelve months immersed." The writer of the note from which I quote says he himself saw a fly pass out with the first glassful of wine, from a freshly opened bottle of champagne, which fly (one of the common species) was laid on the table-cloth, and in fifteen minutes afterwards was seen to gradually raise itself and totter across the table.—'*English Mechanic and World of Science*,' *December* 16.

Quill Pens. — Many of our readers will remember the old-fashioned house in Cheapside, where, day after day, one or two men might be seen at work in the window, cutting quills into pens. Gradually the fact dawned upon the proprietor that a less expensive neighbourhood would suit him quite as well, and he migrated to Newgate Street. The charm, however, was broken, and he sold the business with the lease of the premises. A curious fact in Natural History came to light with the change of proprietary. The place swarmed with spiders and webs, both of which were encouraged, and the attempt to get rid of them was stoutly resisted by one of the old servants, who explained that the feathers of the quills harboured a peculiar highly destructive species of moth; these in turn attracted a peculiar species of spider which had a natural taste for young moths, and thus preserved the feathers.—'*Bookseller*.' I enclose a paragraph I have cut out from one of the daily papers. I should imagine it was exaggerated so far as the "peculiar species" was concerned, and probably only Tinea pseudospretella. Can you throw any light upon it in the 'Entomologist'?—*J. Cosmo Melvill, jun.; Manchester, December* 12, 1870.

Lepidoptera in Cornwall. — During the first three weeks of last July, Mr. L. Cumming and I took the following insects in the neighbourhood of the Lizard, Cornwall. Among the butterflies we got no rarities, but Aglaia, Ægon and Linea were all very common. Sesia philanthiformis I took flying briskly along the flowery earth-walls, and settling on the thyme and sea-thrift. S. ichneumoniformis was common, but local, its sluggish flight contrasting strongly with the brisk flight of Philanthiformis: both these species seemed partial to the neighbourhood of the cliffs: I never saw them fly except in bright sunshine, and they seemed most common in the forenoon. Mr. Cumming found a full-grown larva of Deilephila lineata feeding on dock, but it unfortunately perished in the act of turning to the pupa. We also took Stellatarum (abundant), Complana, Complanula, B. Trifolii (larva), Apiciaria, Pullata, Cytisaria, Vernaria, Immutaria, Alchemillata, Linariata, Galiata. We did not sugar, but the following Noctuæ came to light—Glandifera, Alsines, Lunigera and Serena; and Mr. Cumming took one specimen of Absinthii the day we left. Purpuralis, Cespitalis, Cingulalis and Punctalis were all abundant. Also Cerussellus (abundant), Inquinatellus, Perlellus, Sinuella and Nimbella (common). Marmorella (a few), Microdactylus, Tetradactylus (abundant), Phæodactylus (abundant in one cove by the sea). Considering the short time we spent at the Lizard, and that collecting was not our principal object, I think this list shows that the locality is well worth working.—*W. C. Marshall.*

Mr. Fetherstonhaugh's Crotchets, and Mr. Newman's replies thereto.—As to Crotchet No. 1, I quite agree with Mr. Newman. It seems to me impossible to devise a cheaper, simpler, or more effectual method of killing an insect than the stupifying it, in the first instance, with laurel-leaves, and afterwards piercing it with a quill or steel pen dipped in a saturated solution of oxalic acid. Here, unhappily, our agreement ends. Mr. F. objects to camphor, as having a disagreeable odour: "De gustibus," &c. To *me* the odour of camphor is delightful, and, at any rate, preferable to that detestable preparation called benzole. But Mr. N. objects to its use on very different grounds. "Camphor and grease," he remarks, "are inseparable—cause and effect; you cannot use camphor without having grease." I am not prepared to deny this; but I wish to ask Mr. N. whether he insists upon the converse of this proposition, *i.e.* that if there be no camphor there will be no grease? Scarcely, I think. He states that Mr. Doubleday uses a weak solution of bichloride of mercury dissolved in alcohol to the underside of the insect, and that this process effectually prevents grease, mites, or mould. I must demur strongly to this assertion, so far as *grease* is concerned. Take, for example, the genus

Leucania or Nonagria. Will the application of any amount of the above solution prevent grease in these insects? If so, then, indeed, we are without excuse, if we have a greasy specimen in our cabinets. I am sure that, if this meets his eye, Mr. Doubleday will kindly answer the following question:—Take six specimens (fresh) of each of the following insects, — Sesia Bembeciformis and Apiformis, Nonagria Typhæ and Lutosa; apply the solution and place them in a box. Let nothing else be done; and will Mr. Doubleday guarantee that, at the end of six months or more, there shall not be a greasy specimen among the twenty-four insects? If so, I can say no more. As regards *mites*, Mr. N. says he assumes that camphor is used to prevent their attacks. Most unquestionably; and I firmly believe that it *does* do so. Like him, I am no believer in what is called "spontaneous generation;" but surely he will allow that mites may, and do, find admission into his cabinets, or *store-boxes*, by other means than either this or the unhappy transference of a mite-bearing specimen into his collection? According to my present light (but I am open to conviction) I am aware of no infallible remedy against grease, except the removal of the contents of the body; and, as regards mites, I have found no box or cabinet impervious to their insidious entry, however managed; and that, where there is no camphor, there are more mites. In saying this I do not mean to imply that the application of Mr. Doubleday's solution may not be an equally, or more effectual, preventive. I may add that, in general, the only way to keep a collection in really good order is constant supervision.—[*Rev.*] *J. Greene; Apsley Road, Redland, January* 3, 1871.

Bean Weevil.—Will you kindly advise under the following circumstances:—A quantity of beans, which was bought for seed, is infested by a small Coleoptera; the beans were apparently intact, yet, on opening some, the beetle will be found inside. What is wanted to be known is, what will kill them. Will the mere fact of the cold and wet, to which they would be exposed when the beans are set, kill them? or will some sort of washing or dressing be required to destroy them? I know you have long studied economic Entomology, and should, therefore, feel much obliged by the benefit of your experience being brought to bear on the subject.—*A. B. Farn; 8, Richmond Terrace, Whitehall, January* 18, 1871.

[The beetle is very familiarly known as the "bean weevil" (Bruchus rufimanus). The same complaint, and numerous enquiries, have reached me through the 'Field' newspaper; and, with a view of disposing of them all at once, I published a life-history of the insect in the 'Field' for November 26th, giving figures of the beetle and of the bean. Nevertheless, I am obliged to confess my inability to recommend a remedy, and hesitate to say anything about "washing or dressing," as I know of no experiments in either direction that have proved successful: still I can conscientiously, and most emphatically, caution my readers against the purchase and use of advertised nostrums,—as powders, insect-destroyers, and so forth,—because this is not only a waste of money, but it diverts the attention of the sufferer from those careful investigations which might possibly lead to some beneficial result, just as the republication of the description of a caterpillar, from some authentic source, leads to a reluctance to take the trouble of writing an original description. I have often been reproached with having written original descriptions, when good descriptions had been previously published by Samouelle, Haworth, Stephens, Jermyn, &c., &c. I think otherwise: I think that this system of copying, instead of observing, simply perpetuates error, and thrusts poor Truth still farther into the well, where she is said to have taken up her residence. That the injury committed by this Bruchus is increasing year after year, as stated by some of the alarmists, I totally disbelieve. One hundred and twenty years ago, namely in 1750, a statement was published that "a thousand quarters of large beans were so infested, that the meal, after passing through the mill-stones, was apparently alive with beetles, which took wing and flew about the mill by thousands; and there were from three to five insects in many of the beans." It is, perhaps, difficult to see how the beetles escaped the somewhat uncongenial and unpleasant interference with their anatomy, which mill-stones might possibly occasion; but that is nothing to the purpose. I think that, taking the statement exactly as it stands, it shows *first*, that Bruchi were as numerous 120 years ago as they are now; and *secondly*, that the average number, per bean, was then largely in excess of what it is now: it was then from three to five in a bean; and now the average number, per bean, is certainly a decimal fraction of *one*. Here is a crumb of comfort for the sufferers.—*E. Newman.*]

The Gall Midge of the Ash (*Cecidomyia botularia*, Winnertz).—It often occurs that, long before autumn, particularly in dry seasons, the foliage of the common ash (Fraxinus excelsior) shows signs of premature decay by turning sere and yellow on certain sheltered branches, which eventually shed their leaves much earlier than their neighbours. If we ask the cause of this, we are generally told that the leaves are blighted. But "blight" is such a convenient term when we want to gloss over our superficial knowledge of the diseases of plants, that we have long made up our mind not to be contented with this explanation. In the present instance our observations extend over four years' occasional investigations in Kent and Surrey. We meet with such unhealthy branches on trees of all ages as early as July and August, but it is in September that their yellow hue strikes us most forcibly. For example's sake, we single out one limb, and describe its condition as seen in September. Here and there we see one intact leaf, standing out by its greenness, but the rest are more or less discoloured, and, moreover, distorted, irregular in shape, and folded or crumpled up. We look for a common mark, how to distinguish these disfigured leaves from the normal ones, and we find it in a peculiar partial thickness of the midrib, which, besides, exhibits a longitudinal channel in many instances. Up till this time we have only been viewing the upper surface of the leaves; let us, therefore, inspect their underside as well. We raise the branch up, and the cause of its blighted appearance is explained. Every discoloured and disfigured leaf exhibits on its leaflets a more or less slender swelling of the midrib or of the stalk itself; in some leaves the whole midrib, from base to tip, is thus incrassated, and the lateral parts of the leaf folded from edge to edge; in others their basal part alone is swollen up, and their anterior part more or less abortive. These pod-like swellings or galls are covered with a whitish or brown pubescence, and their juicy consistency shows that they serve as receptacles, diverting the sap, originally intended to supply the whole leaf; hence the sere appearance of the latter, hence its untimely decay. If we now take a longitudinal section of the swollen midrib, we find that it contains a long cell, tenanted by one or several reddish-yellow, footless, 14-jointed larvæ of about a line in length. Their food consists of the juices exuding from the incrassated sides of their dwelling-place; hence, if we open the latter whenever we please, we shall almost always find it licked scrupulously dry, but strewn with the black excrements of its inhabitants. In about three weeks the larvæ are full-fed, when they become obese and sluggish; the irritation their licking produced on the sides of their chamber therefore ceases, the sap no longer flows steadily inward, but becomes accumulated in the more or less pod-shaped, fleshy halves of the gall; a consolidation of the two halves respectively ensues, and causes a longitudinal fissure between them on the upper side of the midrib, through which natural opening the larvæ drop to the ground, in which they bury. Here they shortly become sculptured pupæ, exhibiting all the limbs of the future fly, in thin semi-transparent sheaths, which are laid flat along the breast. In about three weeks from the time of burying, the mature pupæ force their way half out of the ground, and the perfect midges, by bursting their silver-white pupal skins, make their appearance. A few hours' breathing give them the use of their wings and limbs. They are two-winged Cecidomyiæ, or gall-midges; and the species has been described by Winnertz under the name of Cecidomyia botularia. In its living state it is about a line in length; it is reddish-yellow, with a white beak; its thorax shows three narrow, short, pale-brown streaks; the poisers are pedunculated and whitish; in the segments the abdomen is brown, each segment with a fine brownish lateral streak; the hind border of the segments, above and beneath, is fringed with long whitish hairs. The six legs are long and slender, brownish, and clothed with a white pubescence. The wings are comparatively large, transparent, with sparse grayish hairs, and suffused with a weak iridescent violet; their viens are brownish. The feelers are brownish, 26-jointed in the male, and 14-jointed in the female; the latter is furnished with a short ovipositor. The ravages of this midge are mostly confined to the lower and protected limbs of the ash, and if the underside of the branches is examined, a glance shows the conspicuous galls; a practised eye will even soon tell an injured leaf by the peculiarities of its upper surface. If we now look to a remedy, how most effectually to destroy the progeny of these midges, it is evident that we have to remove the affected leaves before the escape of their inmates. Such leaves should be burned, and not simply thrown on the manure-heap, else instead of checking the plague we foster it; and as an additional precaution we would recommend, likewise, to destroy the whole foliage of the season, after its fall, instead of letting it rot on the ground.—*Albert Müller; 'Gardener's Chronicle,' December* 31, 1870.

Encasement of Queen Bees.—Perhaps there are few more unaccountable occurrences in an observant apiarian's experience than the discovery of a small, but hard and densely packed ball of living bees, in the centre of which will be found, if the trouble be taken of carefully unravelling the tangled knot, their own queen, living probably, but in a more or less moribund condition. This is a sight, however, which seldom comes under the notice of the ordinary bee-keeper, who does nor aim at much beyond the commonest methods of management. The scientific bee-keeper, particularly if he attempts much in the way of making artificial swarms and raising artificial queens, will not have pursued his peculiar observations and manipulations very long before he will have one or more instances of this very interesting, though at the same time very disagreeable, encasement of a queen occurring under his own immediate notice. The first case of the sort that I remember as taking place in my own apiary was attended with fatal consequences. A Ligurian queen was presented to me by a friend residing at a considerable distance. Having been sent in a moderate-sized nucleus box, accompanied with the bees of the small artificial swarm by which she was reared, and all being sufficiently well packed, ventilated, and supplied with food, she arrived in very good condition. I was desirous of placing her at the head of a strong swarm, so that I might obtain, as soon as possible, the full benefit of her breeding powers, and be enabled to raise numerous young queens from her, provided she proved by her progeny to be a pure-bred Ligurian. She was, therefore, enclosed with a few of her subjects in a perforated zinc queen cage, which was fixed among the combs of a hive from which I had previously removed the common queen; and having been allowed to remain for twenty-four or thirty-six hours in this condition, the cover was drawn, and she, with her fellow-prisoners, was set at liberty. The latter were seized upon and killed instantly, but the queen disappeared among the combs. A few hours after, observing some signs of excitement, I opened the hive, and discovered the queen encased in a dense mass of bees. Having separated them carefully, by catching each individual bee and throwing it away, her persecutors were reduced to two or three; and now was the critical time. I had great difficulty in preventing these from inflicting a fatal sting, and had to crush one or two of them between my fingers to avoid such a catastrophe. Having freed her from their embraces, I again clapped her into the queen cage, and shut her up among the combs for another period of imprisonment. When I thought that sufficient time had elapsed, and that the bees would surely have become accustomed to her presence, and acquainted with her person, she was again set at liberty. The hive was allowed to remain undisturbed for some hours, at the end of which, on going to ascertain the result, I found her lying dead on the ground outside the hive. I have other instances where the same sort of encasement has taken place, but the bees have of their own accord gradually unfolded themselves, loosened their grasp of each other and the queen, and she has come out of the ordeal scatheless. Occasionally I have found a wing or a leg crippled, or altogether missing, having been maimed in the cruel embrace of her subsequently loving subjects. Although I have raised a very large number of artificial queens, my plan of late years has been to let the hives or small swarms alone, and on no account to disturb them or the bees to which strange queens have been given, for many days. Although I have no reason to doubt that the same kind of queen encasement has frequently taken place, yet I have hardly ever lost a queen from this cause since adopting this plan. I believe that the very anxiety of the bee master too frequently defeats his object—the bees are excited to anger which they would not otherwise have manifested.—*S. Bevan Fox; in* '*Gardener's Chronicle*,' *January* 15, 1870.

Extracts from the printed Proceedings of the Entomological Society, December 5, 1870, *and January* 2, 1871.

New British Hemiptera.—Mr. Edward Saunders exhibited three species of Hemiptera Heteroptera recently added to the British list: Salda arenicola, found on the moist parts of the cliffs to the east of Bournemouth; Plociomerus luridus, two specimens captured by Mr. G. R. Crotch in the New Forest; and Hadrodema pinastri, found by Dr. Power at Weymouth, and since by Mr. E. Saunders in Surrey, at Gomshall and near Reigate, on Scotch firs. The last-mentioned insect was interesting, as adding not only a new species, but a new genus, to the list of British Hemiptera. Mr. E. Saunders also exhibited British specimens of Strachia festiva, which Messrs. Douglas and Scott incorrectly give as a synonym of S. ornata; and several allied continental species, to show their distinctness from S. ornata.

Vanessa Urticæ.—Mr. Butler exhibited a dwarf Vanessa Urticæ, about half the usual size, and very dark in colour, especially on the hind wings. It was one of a brood reared during the present season, the rest of which were of the ordinary size and colour.

New British Coleoptera.—Mr. F. Smith exhibited six specimens of Calodera rubens captured at Lewisham, in March; and Baridius scolopaceus captured on the Kentish coast, in June: both, in the present year, by Mr. Champion. The latter insect is new to the British list of Coleoptera, and differs from other species of Baridius by its elongate snow-white scales.

Beautiful Spider from Syra.—Mr. S. S. Saunders exhibited a living specimen of Eresus ctenizoides, a large spider from Greece, of remarkable beauty: it was of a rich velvety black, with a dull golden border to the abdomen. It was brought from Syra, and its habit was to live under stones, and feed on large grasshoppers. Owing, perhaps, to the smallness of the English grasshoppers, it had remained without food since July.

Asilus preying on Gryllidæ.—Mr. F. Smith mentioned that he had found on Woollacombe Sands, North Devon, a silvery species of Asilus, whose habit it was to prey upon grasshoppers: the latter were numerous in the grassy spots adjoining the sands, and were carried off by the Asilus, which flew with its prey down to the sands, and there devoured it. The species had been determined by Mr. Verrall to be the Asilus albiceps of Meigen, and belongs to Loew's subgenus Philonicus, the only other described species of Philonicus being the P. dorsiger of Wiedemann, from Egypt. Mr. Smith added that Asilus crabroniformis was in swarms at Woollacombe, but appeared to confine its attacks to small Diptera.

Monograph of Ephemeridæ.—Read, the first part of a Monograph of Ephemeridæ, by the Rev. A. E. Eaton. After enumerating the various collections which he had had the opportunity of consulting, the Author gives a bibliographical history of the group from the time of Clutius (1634) to the present day, indicating under each book the species therein for the first time named and characterized, and, when possible, the places where the type specimens, if extant, are deposited. Then follows a list of all the described species arranged in the alphabetical order of the genera; together with remarks on the fossil species, and a list of names of the fossils hitherto reputed to be Ephemeridæ. In the next portion of his paper, the Author gives the generic characters and habits of the Family, followed by Tables of the geographical distribution over the globe of both genera and species, and arrives at the couclusion that "the number of described recent species of Ephemeridæ is about 178, exclusive of ten, which are either hardly determinable or probably mere conditions of well-characterized forms which have been otherwise named; there are three fossil species determinable." The whole of the recent genera and species (including fonr new genera, and twenty-five new species) are then characterized; and the descriptions are elucidated by numerous drawings of structural details. On a future occasion the Author hopes to give a detailed account of the organization and development of some characteristic British species of the Family.

Notable British Lepidoptera.—Mr. W. C. Boyd exhibited some varieties of several British Lepidoptera: amongst them a female Colias Edusa, with the black spot on the front wings almost obliterated, captured in the Isle of Wight in 1869; a dwarf Pieris Rapæ, captured at Cheshunt; a dwarf

Liparis auriflua; the dark form of Miselia Oxyacanthæ; a very pretty and curious Polia Chi (?); and an Agrotis aquilina, with the stigmata joined by a distinct brown line.

Plusia Interrogationis in Sussex.—Mr. Verrall exhibited a specimen of Plusia Interrogationis, captured by Mr. Jenner at Battle, Sussex,—a new locality for the insect.

Anthrax parasitic on Agrotis.—Prof. Westwood called attention to the fact, that in the continuation of Sepp's Nederlandsche Insecten (Ser. 2, vol. ii. pl. xlii.), Dr. Snellen van Vollenhoven has recently figured an Agrotis with a Dipterous parasitic of the genus Anthrax. Though familiar as a parasite on Coleoptera and Hymenoptera, Anthrax had not hitherto been known to attack Lepidoptera.

Newcastle-on-Tyne Entomological Society. — The first Exhibition was held on the 17th inst., in the Curator's room of the Natural History Society's Museum, which has been kindly lent to the Society to hold its meetings in. Amongst the exhibitors were Messrs. Hedworth, Crossling and W. M. Hamilton, who showed cases representing the British butterflies; Messrs. D. P. Morrison and F. Barkas, several cabinet drawers of butterflies and moths; Messrs. Hedworth, Richardson and Bulman, several cases of butterflies and moths; Messrs. Johnston and J. Hamilton, two cases of large silk-moths, many of which had been reared by themselves; Mr. Maling, a case containing Swiss butterflies and moths; Mr. Johnston, a case of continental types of rare and reputed British Lepidoptera, also several fine varieties of Betularia and A. caja; Messrs. Johnston and Henderson, cases of Coleoptera and Diptera; Mr. C. Eales, a very fine case of Tineina, amongst which were several new species discovered by him during the past year; Messrs. the Rev. W. L. Kay, Skelton and Hamilton, cases of Ornamental Entomology. This is the first exhibition the Society has held, and it was quite a success, being largely patronized by visitors, although the meeting had not been publicly announced. During the course of the evening the Rev. W. L. Kay delivered a very interesting address.

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List of Diptera collected in Egypt and Arabia, by J. K. LORD, Esq.; *with Descriptions of the Species new to Science, by* F. WALKER, Esq., F.L.S.

THE Diptera in this collection are not very numerous, and, with some exceptions, are not remarkable, and but slightly represent the Dipterous Fauna of Egypt and of Arabia. The more conspicuous species are Nemestrina Ægyptiaca, Exoprosopa gloriosa, Dimorphaphus syrphoides, and Midas maculatus.

Fam. CULICIDÆ.—Gen. CULEX, *Linn.*

1. *C. pipiens*, Linn. Syst. Nat. i. 2, 1002. Cairo. Inhabits Europe.

Fam. TABANIDÆ.—Gen. TABANUS, *Linn.*

2. *T. terminalis. Female.*—Red. Head piceous above, with a shining ferruginous callus; triangular space between the callus and the antennæ with pale testaceous tomentum; under side clothed with white hairs. Eyes black; facets extremely small. Palpi white. Antennæ tawny, testaceous at the base, with the usual structure. Thorax with two blackish stripes, and in front with two exterior blackish patches. Abdomen with two blackish stripes; disk blackish towards the tip; hind borders of the ventral segments testaceous. Legs tawny; tibiæ at the tip and tarsi ferruginous. Wings cinereous; veins black, with the usual structure; branch of the cubital vein forming a very obtuse angle near its base. Halteres testaceous, piceous at the tips. Length of the body 7½ lines. Mount Sinai.

3. *T. nigrifer. Female.*—Blackish. Head above with cinereous tomentum; callus ferruginous, with a band of cinereous tomentum; space above the eyes bare, shining; under side with white hairs. Eyes with extremely small facets. Palpi testaceous. Antennæ with the usual structure. Thorax with four stripes of cinereous tomentum. Hind borders of the

abdominal segments tawny. Tibiæ dingy whitish towards the base. Wings dark cinereous; veins black, partly and slightly bordered with brown; branch of the cubital vein forming a very slightly obtuse angle which emits a branch. Halteres whitish. Length of the body 7½ lines. Hor Tamanib.

4. *T. politus. Female.*—Black. Vertex with whitish tomentum and with a whitish band, which adjoins the deep black shining convex part on which the antennæ are seated; under side clothed with white hairs. Eyes with extremely small facets. Palpi white. Third joint of the antennæ not angular above. Thorax and pectus with cinereous hairs. Abdomen with two rows of oblique elongated cinereous spots; two spots on each segment. Four posterior tibiæ and tarsi cinereous; fore tibiæ striped with whitish above, except towards the tips. Wings cinereous; veins and stigma black; branch of the cubital vein forming an obtuse and much rounded angle near the base. Halteres tawny. Length of the body 5 lines. Hor Tamanib.

5. *T. pallescens. Female.*—Black. Head with hoary tomentum; vertex with two small shining calli, the fore one broader than the hind one, with which it is connected by a line. Eyes æneous, with extremely small facets. Palpi white. Antennæ tawny, slender, piceous towards the tips; third joint slightly angular above. Thorax with four cinereous stripes; sides mostly tawny. Abdomen ferruginous, with three cinereous stripes. Coxæ and femora piceous; tibiæ dingy whitish, black towards the tips; four posterior tarsi piceous, whitish towards the base; fore tarsi black. Wings cinereous; veins black, whitish at the base; branch of the cubital vein forming a very obtuse and rounded angle near the base. Halteres white. Length of the body 5 lines. Tôr.

Fam. PANGONINA.—Gen. PANGONIA, *Latr.*

6. *P. zonata. Male and female.*—Black. Head and thorax with cinereous tomentum. Head tawny, with a small shining black callus on each side in front; under side thickly clothed with white hairs. Proboscis black, rather more than half the length of the body. Antennæ and legs tawny. Abdomen brown; basal half testaceous; hind borders of the following segments tawny. Wings brown; first branch of the cubital

vein forming a very slightly obtuse angle which emits a branch. Halteres testaceous. Length of the body 7—8 lines. This species belongs to the South African group, of which P. appendiculata is a type. Tajura. Abundant, and very tormenting to cattle.

7. *P. subfasciata*. *Female*.—Black. Head above with whitish tomentum, excepting the shining ferruginous stripe between the eyes; a black shining callus on each side in front; under side with whitish hairs. Proboscis black, rather more than half the length of the body. Antennæ and legs pale tawny. Abdomen piceous-black; first segment irregularly tawny in front and behind; second with a tawny band on the hind border; third with a tawny line on the hind border; under side testaceous, brown at the tip. Wings cinereous; veins black; first branch of the cubital vein forming a very slightly obtuse angle which emits a branch. Length of the body 6½ lines. Nearly allied to the preceding species. Tajura.

Fam. DASYPOGONIDÆ.—Gen. DASYPOGON, *Fabr.*

8. *D. punctatus*, Fabr. Syst. Antl. 165. Harkeko. Tajura. Inhabits South Europe.

9. *D. glaucius*. Asilus glaucius, Rossi, Faun. Etrusc. ii. 327. Harkeko. Inhabits South Europe and Siberia.

10. *D. contrarius*. *Female*.—Black, broad stout. Head short, thickly clothed with white hairs; hind part with testaceous hairs. Mystax and beard white, thick. Proboscis short, stout. Antennæ slender, lanceolate; arista short. Eyes very large; the facets increasing in size from the outer border to the inner border. Thorax thickly clothed with long testaceous hairs. Abdomen almost flat, thickly and minutely punctured, clothed with white hairs, slightly tapering from the base to the tip, a little narrower than the thorax, and nearly twice its length; under side and pectus with very few hairs. Legs stout, thickly clothed with white hairs. Wings whitish; veins black, tawny at the base, slightly bordered with pale brown; hind fork of the cubital vein, and all the hinder veins, not extending to the border. Halteres testaceous. Length of the body 5 lines. This species appears to be allied to the group Pycnopogon; there are three closed areolets in the exterior part of the disk. Mount Sinai.

11. *D. longicornis*, Macq. Dipt. Exot. i. 2, 192. Harkeko. Wâdy Gennèh. Inhabits Egypt.

Fam. LAPHRIDÆ.—Gen. LAPHRIA, *Fabr.*

12. *L. nobilis*. *Male and female.*—Black, with slight cinereous tomentum. Head with black bristles on the vertex and behind and beneath the mystax, which is white; under side with white hairs. Palpi with black bristles. Antennæ clavate; third joint fusiform. Thorax with a white spot on each side in front. Abdomen dark blue towards the tip; first segment with black bristles on each side; second and third with a silvery white spot on each side. Legs with black bristles and spines; arolia pale testaceous. Wings pellucid, more or less brownish and with brown veins towards the tips; veins elsewhere luteous. Halteres testaceous. Length of the body 11—15 lines. The group to which this species belongs has numerous representatives in the Eastern Isles. Rafla. Tajura.

Fam. ASILIDÆ.—Gen. ERAX, *Macq.*

13. *F. cinctipes*. *Male.*—Black, with cinereous tomentum. Head with white hairs behind, and with a thick white mystax. Antennæ slender; third joint lanceolate; arista nearly twice the length of the third joint. Thorax with two black approximate stripes. Abdomen tapering, with cinereous hairs; tip above with a thick tuft of white hairs. Legs stout, with cinereous hairs; femora tawny beneath; tibiæ tawny, with black tips; tarsi with stout black bristles. Wings cinereous; veins black, tawny at the base; a dark cinereous streak between the forks of the cubital vein; these forks are formed by a transverse veinlet near their base, and there is another veinlet between the hind fork and the first externo-medial vein. Halteres testaceous. Length of the body 9 lines. Wâdy Ferran.

14. *E. cinicolor*. *Female.*—Black. Head with white tomentum, clothed with white hairs; mystax white. Antennæ slender; arista long. Thorax with cinereous tomentum and with three paler shining slender stripes; a few long stout black bristles on each side. Abdomen with hoary tomentum, full twice the length of the thorax, tapering from the base to the tip, which is black and shining. Legs stout, with hoary tomentum and with some black bristles; femora beneath and

tibiæ reddish. Wings limpid, extending nearly to the tip of the abdomen; veins black, tawny at the base; hind branch of the cubital vein very near the first externo-medial vein, with which it is connected by a little veinlet. Halteres tawny. Length of the body 10—11 lines. Harkeko. Dahleck.

Gen. Asilus, *Linn.*

15. *A. femoralis*, Wied. Auss. Zweifl. i. 466. Wâdy Ferran. Tôr. Inhabits Egypt.

16. *A. deformis*. *Male and female.*—Black, stout, with cinereous tomentum. Head clothed with white hairs; mystax white. Thorax with three blackish stripes; some whitish bristles on each side. Abdomen tapering from the base to the tip, nearly twice the length of the thorax; hind borders of the segments, from the first to the fourth, black; a few whitish bristles on each side. Legs stout, with whitish bristles; tibiæ and tarsi tawny; hind tibiæ black on the outer side. Wings pellucid; veins black, tawny at the base; forks of the cubital vein undulating. Halteres testaceous. *Male.*—Sexualia small. *Female.*—Oviduct short, compressed, black, shining. Length of the body 9—10 lines. Wâdy Ferran. Wâdy Nash.

17. *A. mivatus*. *Female.*—Black, dull, rather slender. Head with white bristles; mystax white; epistoma prominent; some black bristles near the antennæ, which are slender. Thorax with short black hairs; some black bristles and some longer and stouter white bristles on each side. Abdomen lanceolate, more than twice the length of the thorax, with some white bristles towards the base; tip shining, compressed. Legs black, with white bristles; tibiæ and tarsi tawny; hind tibiæ striped with blackish on the outer side. Wings pellucid; veins black, tawny at the base; forks of the cubital vein slightly undulating. Halteres testaceous. Length of the body 7½ lines. Tajura. Wâdy Nash.

18. *A. enitens*. *Male.*—Black, with hoary tomentum. Head with white hairs behind and beneath; mystax white, thick, with very slender bristles. Antennæ testaceous. Thorax with very few white bristles. Abdomen with a few short white bristles on each side, about twice the length of the thorax, tapering from the base to the tip, which is tawny; sexualia small. Legs testaceous, rather slender; bristles

white, short, slender; femora black above. Wings pellucid; veins testaceous; fore fork of the cubital forming near its base an obtuse angle, which emits a branch. Halteres testaceous. Length of the body 7½ lines. Wâdy Gennèh.

Gen. Damalis, *Fabr.*

19. *D. cinctipes. Male.*—Black. Head broader than the thorax; mystax composed of a few white bristles. Proboscis very short. Antennæ setaceous, slender. Thorax with a few slender black bristles. Abdomen more than twice the length of the thorax. Legs with some white hairs; tibiæ testaceous towards the base; hind tibiæ clavate; hind tarsi dilated. Wings cinereous; veins black. Halteres testaceous. Length of the body 4½ lines. Hor Tamanib.

Fam. Nemestrinidæ.—Gen. Nemestrina, *Wied.*

20. *N. Ægyptiaca,* Wied. Auss. Zweifl. i. 249. N. reticulata, *Latr.*, and N. Ægyptiaca may be identical. The family Nemestrinidæ excel all the other Diptera in the development of their wing-veins, and in their consequent power of flight. Cairo. A specimen of this species, from Trebizonde, is in the British Museum.

Fam. Bombylidæ.—Gen. Exoprosopa, *Macq.*

21. *E. gloriosa. Female.*—Black. Head with bright gilded tomentum and pubescence; epistoma prominent. Eyes iridescent. Antennæ black, lanceolate; first and second joints luteous. Fore border and sides of the thorax and sides of the pectus with bright gilded hairs; scutellum ferruginous. Abdomen broadly and thickly bordered above and below with bright gilded hairs; under side more thinly covered with pale gilded hairs. Legs luteous, with short black bristles; tarsi black, except at the base. Wings black, with brilliant blue and purple reflections. Halteres testaceous. Length of the body 7½ lines. The species of Anthrax and of Exoprosopa excel all the rest of the Diptera in beauty and elegance, and E. gloriosa is more gorgeous than all the others of its tribe. Harkeko.

22. *E. marginalis. Female.*—Black. Head tawny on each side of the epistoma, which is prominent. Antennæ black. lanceolate. Thorax thickly clothed with orange hairs on the fore border and on each side with orange hairs. Scutellum piceous. Abdomen tawny and with gilded tomentum on

each side and beneath. Legs tawny, long, slender; tarsi black. Wings black; a white dot and a posterior white point in the disk at one-third of the length; a white spot in the disk at half the length; an occasional cinereous longitudinal streak near the hind border; tips cinereous. Halteres testaceous. Length of the body 6 lines. Massowah.

23. *E. nigrifera.* *Female.*—Black. Head tawny on each side of the epistoma, which is prominent. Thorax with some black bristles on each side. Wings black, with a cinereous streak in the disk, with three posterior cinereous dots and with paler cinereous tips. Halteres tawny. Length of the body 6 lines. Mount Sinai.

24. *E. disrupta.* *Male.*—Black. Head luteous and with gilded tomentum, excepting the vertex. Antennæ black, lanceolate, tawny towards the base. Thorax clothed with yellowish hairs on the fore border, and with white hairs along each side, where there are some black bristles. Scutellum dark red. Abdomen red along each side and at the tip; a band of white or of yellowish pubescence on the fore border of each segment; under side red. Legs black. Wings black, with five cinereous spots, and along the hind border with a broad cinereous space which is interrupted by some black streaks along the veins. Halteres yellowish. *Female.*—Abdomen not red; under side with white pubescence. Length of the body 5½—6 lines. Hor Tamanib.

25. *E. antica.* *Male and female.*—Black. Head with yellowish pubescence and with many black bristles. Antennæ lanceolate. Thorax with yellowish white hairs along the fore border and along each side, where there are many black bristles. Scutellum of the male ferruginous. Abdomen along each side with whitish hairs and with black bristles, the latter most prevalent in the female; under side with whitish tomentum in the male. Wings cinereous, brown along the costa; transverse veinlets clouded with blackish. Halteres testaceous. Length of the body 5½—7 lines. Hor Tamanib. Tôr.

26. *E. paupera.* *Male.*—Black. Head with a prominent epistoma, which has silvery white tomentum. Antennæ lanceolate. Sides of the thorax and of the abdomen with silvery white hairs. Hind border of the scutellum tawny. Pectus and under side of the abdomen with silvery white tomentum. Legs black. Wings slightly cinereous, pale

testaceous at the base; veins black, except at the base; three submarginal areolets. Halteres testaceous. Length of the body 4½ lines. The specimen described is somewhat worn; in a recent state it may probably have silvery white bands on the abdomen. Tajura.

Gen. ANTHRAX, *Fabr.*

27. *A. incana*, Klug. Symb. Phys. pl. 30, fig. 5. Mount Sinai.

28. *A. plagiata*. *Female.*—Black. Head with a tawny and prominent epistoma. Antennæ black, lanceolate. Thorax with whitish hairs on each side. Scutellum bordered with red. Abdomen with whitish hairs on each side, and more especially at the tip; a tawny patch on each side; tips tawny. Tibiæ tawny. Wings pellucid, with some brown nearly contiguous patches, which terminate obliquely, occupy about half the surface, and do not extend to the hind border; veins black, tawny at the base. Halteres testaceous. Length of the body 4 lines. This species and the preceding have only two submarginal areolets, but agree with Exoprosopa in the structure of the head and of the antennæ. Cairo.

29. *A. fenestrata*, Fabr. Dipt. Suec. Anthrac. 8, 4. Hor Tamanib. Inhabits Europe.

30. *A. morio*. Musca morio, Linn. Faun. Suec. 1784. Hor Tamanib. Inhabits Europe.

31. *A. semiatra*, Meig. Dipt. ii. 157. Harkeko. Inhabits Europe.

32. *A. suffusa*, Walk. List Dipt. B. M. ii. 251 var.? The spot nearest the tip of the wing in the tropical specimen is wanting in those here recorded; they differ still more from A. diffusa, *Wied.* Cairo.

33. *A. subnotata*. *Female.*—Black. Epistoma not prominent. Hind borders of the abdominal segments tawny, with silvery white tomentum. Legs black. Wings cinereous; two transverse blackish streaks in the disk, the outer one much shorter than the inner one; two submarginal areolets; veins black; fore fork of the cubital forming near its base an angle which emits a branch. Halteres testaceous. Length of the body 4½ lines. Mount Sinai.

34. *A. micrargyra*. *Male.*—Black. Head silvery, and with

silvery white hairs on each side above, along the eyes; hind part silvery. Antennæ very short; third joint round. Thorax with long silvery white hairs on each side. Abdomen clothed with silvery hairs beneath and towards the tip above. Femora slightly silvery beneath. Wings quite pellucid; veins white. Length of the body 3½ lines. Cairo.

FRANCIS WALKER.

(To be continued.)

Entomological Notes, Captures, &c.

Mr. Fetherstonhaugh's Crotchets.—It appears to me somewhat odd that, with respect to Crotchet No. 1, both Mr. Newman and the Rev. Joseph Greene have quite passed by the question raised. Mr. F.'s crotchet, as he very distinctly stated it, is that strychnia, by its diffusive power, if inserted into the thorax of the living insect would effectually ward off all future attacks of mites, &c., from any portion of a specimen so killed. This is a simple proposition, which I, for one, have been most anxious to see discussed and disposed of; but Mr. Newman and Mr. Greene have gone off into a discussion of whether camphor is synonymous with grease, and whether it or benzole is the most pleasing to the olfactory nerves. Mr. Fetherstonhaugh has not stated that strychnia, in its immediate effect of producing the death of the insect, is at all to be preferred to any of the modes of killing already before the public, but he has suggested that its use may obviate the necessity for having recourse to camphor, benzole, cajeput, or any of the other strong-scented matters, to which I would apply Mr. Greene's remark, "de gustibus," &c. I beg to suggest a crucial test: let an insect (say of the Bombycidæ) be killed in the manner suggested by Mr. Fetherstonhaugh, and, when set and dry, placed in a drawer with insects already affected with mites: if the insect killed with strychnia escapes attack, then Mr. Fetherstonhaugh will have established his point, and done good service to the science of Entomology. I will not attempt to follow Mr. Newman and Mr. Greene into the grease question; Mr. Newman appears to abjure camphor and suggest benzole; Mr. Greene likes the one and abhors the other.

Dr. Knaggs, in his 'Lepidopterist's Guide,' condemns both. When such learned and eminent authorities so differ, what is a humble member of the "profanum vulgus," like myself, to think or do?—*E. MacDowel Cosgrave; Reading Rooms, Trinity College, Dublin.*

Gall of Ammophila arundinacea.—The galls on Ammophila arundinacea, *Host.* (*Psamma arenaria*, L.), found by Mr. Traill, near Aberdeen (as noticed in 'Entomologist,' vol. v. p. 189), are not made by a gall-fly, as is supposed by Mr. Moncreaff (Entom. 240), but by Eurytoma longipennis of Walker, a species of Chalcidite. The same galls were discovered in our country by my brother John Ritsema, in 1868, on the downs, near Landvoort, in Noord-Holland, and have produced the above-mentioned insect, which, however, is not a parasite. You will find the life-history of this species in the 'Archives Néerlandaises des Sciences exactes,' vol. v., 1870; and some remarks on the same subject appear in 'Nederlandsch Tydschrift voor Entomologie,' 2nd series, vol. vi. 1871, in the 'Proceedings' of the Scientific Meeting of 5th November, 1870.—*C. Ritsema, Cz.; Netherlands, Leiden, Mare,* 642, *February* 15, 1871.

S. dealbata in Hertfordshire.—In your excellent work on 'British Moths' you say that S. dealbata is very common in one or two localities in Kent, but is unknown elsewhere in England. I believe it has hitherto been found nowhere else but in Kent, and I was, on this account, surprised to come across a single specimen whilst collecting on Berkhampstead Common, in July, 1869. I cannot be mistaken as to its identity, having seen many specimens of this insect, and compared mine with them.—*C. L. Raynor; Bordyke House, Tonbridge, February* 16, 1871.

Variation in Butterflies, Deilephila Galii.—With reference to your correspondent's remarks respecting Epinephele Hyperanthus, I beg to state that I possess specimens of the insect with the rings distinctly on the upper surface, which specimens I shall be glad to send for your inspection if you desire it. I have also a specimen of Pieris Brassicæ, male, with a *trace* of black on the upper surface of one of the fore wings, in the position occupied by the circular black spot on the under surface. I notice, in the last number of 'British Butterflies,' that you do not give Yorkshire as a locality for

Colias Edusa. It has occasionally been taken in this neighbourhood, and a specimen was seen in the immediate vicinity three years ago. I have heard of two captures of Deilephila Galii during the past year, in addition to those mentioned in the 'Year-book;' one by a friend of mine at Middlesborough (which I have seen), and another at Sheffield.—*Jas. H. Rowntree; Westwood, Scarborough, February* 14, 1871.

Thecla Quercus and Satyrus Tithonus in Ross-shire.—Would *bonâ-fide* specimens from Ross-shire of S. Tithonus and T. Quercus dissipate the scepticism of Mr. Jenner-Fust? If so, I shall have the greatest pleasure in transmitting him a specimen of each. In the same district I have taken Cymatophora Or, Thyatira Batis and Notodonta dictæoides, which, so far as I am aware, have not hitherto been discovered so far north.—*A. Davidson; Tarbert, Fearn, by Inverness, February* 4, 1871.

Deilephila Galii at Plumstead.—I have lately had my collection of insects increased by a specimen of D. Galii, which was caught last August by a boy, in a greenhouse, at Plumstead, Kent. I have made you acquainted with this capture, as I believe that this insect is not of common occurrence in this county.—*Thomas Barns; Oakington House, Beckenham, Kent, February* 18, 1871.

Deilephila Galii; emergence on the 8*th February.*—I had a splendid specimen of Deilephila Galii emerge from pupa yesterday afternoon. I was fortunate in securing several larvæ of this rare moth, on the sand-hills at New Brighton, last autumn, feeding on the lady's bedstraw. I have kept the pupæ in a warm kitchen.—*Samuel James Capper; Huyton Park, near Liverpool, February* 9, 1871.

Management of Liparis dispar.—I hope you will not deem the following question too trivial for a reply in the 'Entomologist' next month, but I am unable to ascertain from your 'Insect Hunter's,' or your valuable work on 'Moths,' the time I may expect the eggs of Liparis dispar to hatch, and whether accelerated by heat or otherwise. I hope I am not too late for a reply in the February number. What should their food consist of when first hatched? I am only a beginner (the first year I have attempted to carry larvæ through the winter).—*J. H. Melhuish; 25, Albert Street, Islington, January* 27, 1871.

[This note arrived after the publication of the February number. In reply, I may say that I have had no experience in breeding Liparis dispar. English specimens, either as eggs or larvæ, are not to be obtained, but, as in silkworms, a domesticated race of the insect is constantly maintained. Perhaps some of my correspondents will relate their experience.—*E. Newman.*]

Exchanging.—The discontinuance of the Exchange Club, which has been carried on by myself and Mr. Marsden since 1868, would seem to suggest the desirability of a little explanation, as the experience we have gained may prove useful, should any such club be established by others, which we hope will some day be done. Notwithstanding the inconvenience of a defective centre, like Gloucester, where the deficiency of entomologists rendered the work too onerous, the practicability of a legitimate system of exchanging has been fairly demonstrated during the three seasons of the club's existence. The subscription being fixed so low as half-a-crown, and the expenses of bringing the club before the entomological public being much greater the first two years than they would be subsequently, left a considerable deficit at the end of 1869; but this was nearly obliterated in 1870; and had the club been continued another season there would have been a small credit-balance to purchase insects for distribution. But the secretary, Mr. Marsden, has been obliged to resign from ill health. The results of the three years may be roughly tabulated thus:—

	No. of members.	Of whom contributed.	No. of specimens received.
1868	26	20	2800
1869	46	33	5000
1870	42	31	5200

Of these 13,000 specimens fully half were of little or no value, on account of their being badly set or in bad condition; but all that have been worth sending, and many, indeed, that were not, have been distributed. Many very good local species have been sent to the club, but no rarities, which were, in fact, not to be expected. Every effort was directed to make the distribution as fairly as possible, in proportion to the relative value of the specimens received; and with the exception of two members in 1869, and two in 1870, all have expressed themselves satisfied and pleased with the exchange, and in these instances it was found impossible to make a full return owing to the few species desiderated. If the London entomologists were to take this matter of exchange up, with a working committee of half a dozen or so, and some leading entomologist as president, a really good club could be formed. Should any such step be taken, we shall be most happy to assist in any way that we can.—*Joseph Merrin; Gloucester.*

[This explanation or apology seems scarcely required. It may be taken for granted that entomologists will not send their best captures for distribution in this manner: the *quid pro quo*, or rather the two or three *quids* for one *quo*, is the indispensible condition of exchangers; yet they will, doubtless, be willing to send duplicates, for which there is no more promising market. Mr. Merrin's statistics show this in the most unmistakeable manner: "out of 13,000 specimens fully half were of little or no value, on account of their being badly set or in bad condition." This is a matter of course, and always will be so. Entomologists who offer to barter Rapæ for Daplidice, Urticæ for Antiopa, and so forth, as we are apprised by the exchange lists, would scarcely be likely to send their Daplidices or Antiopas to an exchange club.—*Edward Newman.*]

Canary Tick.—Through the kindness of Mr. Whitehead, of Blenheim Court, Dulwich, I have lately become acquainted with an Acarus, which infests canaries and, probably, other cage birds; it seems to travel principally by night, and may be induced to quit the cage by covering it with a white handkerchief. In the morning the ticks will be found dotted all over the handkerchief. I am prepared to describe and name this little mischief-maker, for so it may be called, as it seems to be a sore plague to the canaries. I delay, however, in the hope that some of my readers may be able to give me their experience, and say whether they are acquainted with the animal, and whether it has been characterised.—*Edward Newman.*

Extracts from the printed Proceedings of the Entomological Society, February 6, 1871.

Mr. Eedle's Scotch Lepidoptera.—Mr. Bond exhibited several species of Lepidoptera taken in Perthshire, last season, by Mr. Eedle, *viz.* Pachnobia alpina, being the third known British example; a fine variety of Larentia cæsiata; a very dark form of Thera juniperata, being its ordinary condition in the Rannoch district, and remarkable also for the time of its appearance, which was nearly two months earlier than in England; Gelechia boreella; and finally Hyponomeuta evonymella, *L.* (Padi, *Zeller*), the larva of which Mr. Eedle had observed to cover the trees of bird-cherry with its webs to a remarkable extent,—a piece of web exhibited was a yard long.

[These interesting insects have already been fully noticed in the 'Entomologist,' v. 199, which see for a full report of Mr. Eedle's captures in Scotland, in the spring of this year.—*E. Newman.*]

Imago of Atalanta with head of Larva.—Mr. Bond also exhibited an example of Vanessa Atalanta, bred by Mr. Jackson, which still retained the larval head. Prof. Westwood said that this form of monstrosity was very rare. He could call to mind only four recorded instances: (1) Nymphalis Populi, (2) Gastropacha quercifolia (3) Dytiscus marginalis in the British Museum, and (4) a Syrphus in the Oxford Museum.

New British Beetle.—The Rev. H. S. Gorham exhibited a beetle new to the British list, concerning which he made the following remarks:—"*Oxytelus fulvipes* of Erichson. Of the indigenous species most allied to O. rugosus, *Fab.*, from which it differs as follows: the head, thorax and elytra are much less closely punctured, especially the former, which also lacks the depression of the clypeus, conspicuous in rugosus; this part also being shining instead of opaque. The thorax is proportionally shorter and more narrowed towards the base; the lateral margins obsoletely crenulate. The legs and first four joints of the antennæ are testaceous; these joints, however, in my specimens are spotted with pitchy. The third joint is shorter than the second; whereas the reverse is the case in rugosus. In the male characters beneath, this species presents considerable differences,—the fifth segment being simple (in rugosus the margin bears a conspicuous tubercle), and the seventh has the margin simply bisinuate. One male and three female specimens, found by myself, near a wet spot in a wood, near Needworth, Staffordshire, January, 1870. It is found also in Germany, Austria and France."

Proceedings of the Haggerstone Entomological Society.

October 6, 1870.—Mr. Eedle, Vice-President, in the chair. Mr. Elisha exhibited some very large specimens of Epunda lichenea. Mr. W. Harper, preserved specimens of the larvæ of Deilephila Galii. Mr. Pryer, Leucania albipuncta. Mr. Eedle, two specimens of the rare Noctua, Pachetra leucophæa. Mr. Boden, fine specimens of Heliothis marginata.

October 13, 1870.—Mr. J. Russell exhibited specimens of Cymatophora ocularis, Mamestra abjecta, Agrotis cinerea, Catocala sponsa and C. promissa. Mr. Eedle, a captured specimen of Deilephila Galii. Mr. Franklin, Epunda lutulenta. Mr. Moore, a beautiful specimen of Xylina Zinckenii, captured by him, in Darenth Wood, on the 2nd of the month.

October 26, 1870.—Mr. E. Barlow, President, in the chair. Mr. Lormier exhibited preserved larvæ of Smerinthus ocellatus, S. Tiliæ, S. Populi and Dicranura vinula. Mr. Healy, some living larvæ of Coleophora therinella.

October 27, 1870.—Mr. T. Eedle exhibited specimens of Ennomos erosaria and Halias quercana. Mr. J. Moore, Lythria purpuraria. Mr. Jackson, an example of Vanessa Atalanta having a larval head. Mr. J. Russell, fine specimens of Emmelesia tæniata.

Ninety-seven members attended the meetings this month.

November 3, 1870.—Donations to the Cabinet:—Mr. J. A. Clark exhibited specimens of Cossus ligniperda, Catocala nupta, Zygæna Filipendulæ, Erebia Medea, Macroglossa Stellatarum and Arctia lubricipeda. Messrs. Barry and Bartlett, specimens of Phlogophora empyrea. Mr. Eedle, fine specimens of Argyrolepia æneana.

November 10, 1870.—Mr. Scott, who was present as a visitor, exhibited a remarkable variety of the male of Argynnis Paphia.

November 24, 1870.—Donation to the Funds:—Mr. T. Cooke, of 513, New Oxford Street, having presented the funds of the Society with one guinea, an unanimous vote of thanks was passed to that gentleman for his kindness. Mr. J.

A. Davis exhibited specimens of Ptilophora plumigera and Notodonta dodonæa.

During this month seventy-seven members attended the meetings of the Society.

December 1, 1870.—Mr. J. Peed, Mr. Scott and Mr. E. Fitch were elected members. Mr. Davis exhibited Odontia dentális. Mr. Boden, specimens of Eupithecia consignata and Xanthia aurago.

Half-yearly Meeting.—Messrs. Barlow, Harper and Gates were re-elected to fill the respective offices of President, Treasurer and Secretary; Vice-President, Mr. Bush; Assistant Secretary, Mr. Barry; Librarian, Mr. Healy; and Curator, Mr. Davis. Committee of Management, Messrs. Bramley, Bryant, Bartlett, Eedle, Healy and Woodage.

December 8, 1870.—Mr. Meek exhibited specimens of Lemiodes pulveralis and Argyrolepia æneana. Mr. Barlow, living larvæ of Zeuzera Æsculi. Mr. Danby was elected a member.

December 23, 1870.—Mr. J. A. Clark exhibited a specimen of Catocala Fraxini. Mr. Meek, Acronycta Alni and Madopa salicalis. Mr. Eedle, a variety of Pieris Rapæ, having the apical spots much larger than usual, also the veins of the hind wings black.

Ninety members attended the meetings this month.

January 5, 1871.—Mr. E. Barlow exhibited specimens of Selenia illustraria and Pericallia syringaria.

January 12, 1871.—Mr. Elisha exhibited specimens of Phoxopteryx ramana, Stigmonota lunulana and Catoptria pupillana.

January 26, 1871.—Donation to the Cabinet:—Six specimens of Sesia philanthiformis, by Mr. Warrington. Mr. Boden exhibited specimens of Cirrœdia xerampelina, Acronycta auricoma, Acosmetia caliginosa and D. rubiginea. Mr. Healy, a box showing the economy of Euura Gallæ of Newman, a species of sawfly, bred by him from larvæ forming galls on the leaves of Vaccinium Vitis-idæa, discovered by Mr. Eedle in Scotland (Perthshire), in the month of June, 1869, the imagos being produced the following May.

Eighty-three members attended the Society's meetings this month.

THE ENTOMOLOGIST.

No. 89.] APRIL, MDCCCLXXI. [PRICE 6d.

List of Diptera collected in Egypt and Arabia, by J. K. LORD, Esq.; *with Descriptions of the Species new to Science, by* F. WALKER, Esq., F.L.S.

(Continued from p. 263.)

Gen. ANTHRAX, *Fabr.*

35. *A. tenuis. Male.*—Black, slender, with cinereous tomentum. Epistoma testaceous in front, not prominent. Antennæ lanceolate. Thorax with a few white bristles on each side. Abdomen tawny beneath and along the hind borders of the segments on each side above. Legs piceous. Wings pellucid; veins black, testaceous towards the base; fore branch of the cubital vein deeply undulating; two submarginal areolets. Halteres whitish. Length of the body 4 lines. The specimen described is somewhat injured. Harkeko.

Gen. BOMBYLIUS, *Linn.*

36. *B. sericeus*, Meig. Zweifl. ii. 203. Cairo. Inhabits Europe.

37. *B. senex?* Hoffm. Meig. Zweifl. ii. 216. Mount Sinai. Inhabits Europe.

38. *B. miscens. Female.*—Black, thickly clothed with silvery white hairs. Proboscis much longer than the thorax. Scutellum red. Abdomen with many black bristles along each side and at the tip. Legs tawny, minutely setose; femora black; fore femora tawny towards the tips. Wings pellucid; veins black, tawny or testaceous towards the base and along the costa. Halteres testaceous. Length of the body 6 lines. Hor Tamanib. Harkeko.

39. *B. nivifrons. Male.*—Black, thickly clothed with snow-white hairs. Proboscis much longer than the thorax. Scutellum testaceous, except at the base. Abdomen most densely clothed with long hairs on each side and at the tip. Legs tawny, minutely setose; femora black. Wings cinereous; veins black, tawny or testaceous towards the base. Halteres

white. Length of the body 5 lines. Cairo. Var. β. Scutellum red, black at the base. Abdomen red, black at the base above and with a short stripe of three transverse black spots, which successively decrease in size. Dahleck.

40. *B. exiguus. Female.*—Black, thickly clothed with shining whitish hairs. Head with a few black hairs on the vertex. Proboscis much longer than the thorax. Legs pale testaceous. Wings pellucid; veins black, testaceous towards the base. Halteres whitish. Length of the body 2½ lines. Hor Tamanib.

Gen. PHTHIRIA, *Meig.*

41. *P. minuta.* Volucella minuta, *Fabr. Syst. Antl.* 115. Cairo. Tajura. Inhabits Europe.

Gen. DIMORPHOPHORA.

Male.—Body slender. Head broader than the thorax; epistoma vaulted, very prominent. Eyes large, nearly contiguous on the vertex; facets very small. Proboscis rather shorter than the thorax; its sheaths hooked at the tips. Antennæ very short; third joint short, conical; arista more than twice the length of the third joint. Thorax broader than the abdomen; scutellum semicircular. Abdomen tapering from the base to the tip, about twice the length of the thorax; apical tuft very small, compressed. Legs rather stout, moderately long. Wings narrow; two submarginal areolets.

42. *D. syrphoides. Male.*—Black. Head pale yellow, black behind. Eyes iridescent. Proboscis pale yellow, black at the tip. Antennæ pale yellow; third joint and arista black. Thorax with yellowish white hairs in front and on each side; a callus along each side and scutellum yellow. Pectus pale yellow; disk mostly black. Abdomen orange; first and second segments black; second with a transverse yellow spot on each side; each of the following six segments with a black spot on the fore border, and with a transverse black spot on each side; hind borders of the segments white; tip and under side and legs yellow. Hind femora with black tips. Wings pellucid; veins black. Halteres yellow. Length of the body 6 lines. Wâdy Gennèh.

Fam. MIDASIDÆ.—Gen. MIDAS, *Wied.*

43. *M. maculatus. Male.*—Black. Head with short hoary

hairs; epistoma tawny. Club of the antennæ fusiform, a little shorter than the preceding part. Thorax tawny behind and with four tawny stripes. Abdomen tawny, with six longitudinally elongated black spots on each side; first segment not spotted; second with a transverse black spot on each side of the hind border. Legs tawny; hind legs with short bristles beneath. Wings cinereous, with brown stripes along the veins; veins black, tawny at the base. Length of the body 6 lines. Mount Sinai.

Fam. EMPIDÆ.—Gen. PLATYPALPUS, *Macq.*

44. *P. flavipes.* Empis flavipes, *Fabr. Ent. Syst.* iv. 406. Cairo. Inhabits Europe.

Gen. DRAPETIS, *Meig.*

45. *D. ænea. Female.*—Æneous, shining. Antennæ, abdomen and legs black. Tips of the hind femora and of the hind tibiæ tawny. Wings pellucid; veins black, tawny at the base. Length of the body 1 line. Cairo.

Fam. SYRPHIDÆ (SYRPHINÆ).—Gen. SYRPHUS, *Fabr.*

46. *S. latiusculus. Female.* Æneous. Head yellow; vertex and hind border black, the latter and the sides of the thorax with whitish hairs. Scutellum yellow; disk piceous. Abdomen black, elliptical, broad; first, second and third segments with a chalybeous band on the hind border, and with an abbreviated and interrupted yellow band on the disk of each; the two spots of the first yellow band distinctly transverse; those of the second band and of the third slightly oblique; hind borders of the third and fourth segments yellow; fourth segment chalybeous; under side yellow, with an abbreviated black band on each segment. Legs yellow; hind femora black, their tips yellow; four anterior femora black at the base. Wings pellucid; veins black, yellow at the base. Halteres yellow. Length of the body 5 lines. Wâdy Ferran. Mount Sinai.

47. *S. interrumpens. Female.* Æneous. Head yellow; vertex and hind border æneous, the latter and the thorax with short yellowish hairs. Scutellum yellow. Abdomen black, chalybeous at the base and at the tip; first, second and third segments with a chalybeous band on each hind border; three broad yellow bands; first band narrower towards the middle, where it is interrupted; second and

third deeply notched on the hind side; fourth segment yellow, with a transverse black spot in the disk; under side like the upper side. Legs yellow. Wings pellucid; veins black, yellow at the base. Halteres yellow. Length of the body 4½ lines. Cairo. Wâdy Nash.

48. *S. turbidus. Male.* Æneous. Head yellow; vertex and hind border æneous, the latter and the thorax with short yellowish hairs; a black streak extending to the peristoma. Antennæ black. Scutellum dingy yellow. Abdomen black, with chalybeous bands; three large transverse yellow spots on each side; first pair of spots narrowest on the inner side; second and third excavated on the fore side, narrowest on the outer side; third and fourth segments with yellowish hind borders; under side like the upper side. Legs yellow; femora black, yellow towards the tips. Wings cinereous; veins black. Halteres pale yellow. Length of the body 4¼ lines. Cairo.

49. *S. Ægyptius*, Wied. Auss. Zweifl. ii. 133. Wiedemann conjectures that this may be a variety of S. scutellaris, *Fabr. Syst. Antl.* 252, a native of Hindostan. Cairo. Hor Tamanib.

Gen. MELITHREPTUS, *Loew.*

50. *M. calceolatus.* Sphærophoria calceolata, *Macq. Dipt. Exot.* ii. 2, 104, pl. 17, f. 7. Cairo.

ERISTALINÆ.—Gen. ERISTALIS, *Latr.*

51. *E. tenax.* Musca tenax, *Linn. Syst. Nat.* i. 2, 984. Cairo. Mount Sinai. Inhabits Europe.

52. *E. tæniops*, Wied. Zool. Mag. ii. 42; Auss. Zweifl. ii. 182. The markings of the abdomen are variable. Cairo. Wâdy Nash. Inhabits South Africa.

53. *E. taphicus*, Wied. Auss. Zweifl. ii. 191. Cairo.

54. *E. horticola.* Musca horticola, *Deg. Ins.* vi. 60. Cairo. Inhabits Europe.

55. *E. punctifer. Female.* Chalybeous, with hoary tomentum. Head with a black shining callus between the antennæ and the mouth. Eyes bare, ferruginous, with numerous black points. Antennæ tawny. Thorax with four shining stripes of the ground hue; scutellum of the ground hue; hind border dingy testaceous. Abdomen black, dingy testaceous at the base, with four pale testaceous bands, and

with three chalybeous bands. Legs black; knees and four anterior tibiæ dingy testaceous; tarsi piceous. Wings pellucid; veins black, testaceous towards the base. Halteres testaceous. Length of the body 4—4½ lines. Tajura.

FRANCIS WALKER.

(To be continued.)

Entomological Notes, Captures, &c.

Description of the larva of Acidalia rubricata.—On the 13th of August last I received, through the kindness of the Rev. J. Hellins, a young larva of this species. It fed on Polygonum aviculare, growing slowly until the early part of October, when it began to hybernate. On the 15th of that month I took a description as follows:—Length nearly half an inch, slender, but of average Acidalia proportions; head larger than the second segment, notched on the crown; body cylindrical, and of nearly uniform width, but slighly thickening posteriorly; segmental divisions distinct, each finely ribbed transversely, which gives the skin a rather rough appearance, being also rough to the touch; general colour grayish brown; head gray, marked with smoke-colour, medio-dorsal line indistinct to the tenth segment, faint rust-colour; on the remaining posterior segments broad and distinct, dull black. When seen through a lens, however, the faint rust-coloured dorsal line seems to run very narrowly through the broad black of the posterior segments; on each of the other segments the black appears in the shape of two short parallel black marks, one on each side the dorsal line; there are no perceptible subdorsal lines; spiracular lines puckered, lighter than the ground colour: ground colour of the belly similar to the dorsal surface; it is bordered on each side by a conspicuous dark-smoky subspiracular line. When at rest the food-plant is grasped by the claspers, and the body bent in a curved position, more so than in any other Acidalia larva I have noticed. In this position my larva remained a great part of the winter, but the very severe weather we had appeared to have been too much for it, as I found it dead on examining my hybernating larvæ in the early part of February. What its food is in a natural state, I believe is as yet unknown.—*Geo. T. Porritt; Huddersfield, March* 3, 1871.

The Strychnia and Camphor Crotchets.—I find on enquiry that Mr. Doubleday uses a weak solution of bichloride of mercury (corrosive sublimate) in alcohol to preserve Lepidoptera from the attacks of mites and from mould, which it effectually does if properly applied, but I was mistaken in supposing that it prevented specimens from becoming greasy. Mr. Doubleday opens the abdomens of the larger species, carefully removes the contents, and then puts in some finely-powered pipe-clay to absorb any grease that may remain: when this is effected the pipe-clay is taken out and a small quantity of fresh pipe-clay is placed in the abdomen, which is then filled up with cotton-wool cut short: if a small quantity of grease should afterwards exude (which is not often the case) it is easily removed with a little highly-rectified spirits of turpentine and powdered pipe-clay. When the insects are small they are allowed to remain in very pure turpentine for an hour or two. They are then placed for a minute or two on blotting-paper to drain, and lastly covered with fine-powdered pipe-clay, which will easily brush off the specimens when they are dry.—*Edward Newman.*

Nights for Sugaring.—I have taken the liberty to write these few lines, hoping that you may be able to solve the following difficulty, *viz.* "That after having selected nights which seemed, by Dr. Knagg's book, to be likely to be favourable, and after having made the sugaring mixture as he directs, and boiled it to the same thickness as treacle, neither I, nor any of my fellow-collectors here, have met with the least success during the last two seasons; and one gentleman, who has collected all his life in the neighbourhood, has never had any better luck." The soil is chalk and greensand, very prolific in all Lepidoptera. Would you mention the best time of year and nights for sugaring, and the consistency the sugar should be made of, and whether, on most nights seeming suitable, one ought to have success, and if it is the exception rather than the rule?—*J. S. Butler; Netherton House, near Hungerford, Berks.*

[I am not acquainted with Dr. Knagg's directions; but, at

p. 89 of Mr. Greene's invaluable 'Insect-Hunter's Companion,' you will find receipts for all the mixtures that have been found successful.—*E. Newman.*]

Exchanging.— Mr. Newman's note, appended to Mr. Merrin's communication, on this subject, in the March number of the 'Entomologist,' appears to me to be somewhat wide of the mark. That foolish people make such offers as Rapæ for Daplidice, &c., does not prove or falsify the benefits an exchange club would confer on the more straightforward class of collectors, especially if established on a somewhat broader basis than hitherto. Indeed, I would ask why a Botanical exchange club can be satisfactorily continued, and not a Lepidopterists'? I would like to lay the following points before the readers of the 'Entomologist,' and urge some of their London brethren to take the matter seriously in hand. *First.* The old club succeeded; and it was only in compliance with urgent medical directions that I discontinued my connection with it, when, of course, the labour became too heavy for Mr. Merrin to carry on *alone. Secondly.* The greater part (in fact, nearly all) of the members were perfectly satisfied with the exchanges made. *Thirdly.* Although no *rare* species were sent to us, very many good local ones were (such as Ichneumoniformis, Elymi, Blomeri, Rubricata, Lapidata, &c.); and a great improvement was made in the condition of the insects sent from year to year. Had the club been continued, all bad or indifferent specimens would have been rigidly returned to the senders or destroyed; but, on first starting, this was held to be too discouraging to young entomologists. *Fourthly.* Since the discontinuance of the club I have had numerous letters from members expressive of regret at its discontinuance, and of hopes for its re-establishment; and, of the forty-two members of 1870, I feel assured thirty (at least) would join a new club; and were this established, under the auspices of a few better-known entomologists, this number would be greatly augmented from the provinces, and many London collectors would also join. Thus a club could be started on a solid foundation; and, to such a one, the better class of entomologists would gladly send their duplicates (after supplying their *immediate* friends), in preference to answering advertisements from unknown collectors, and amongst which we see such absurd offers as those pointed out by Mr. Newman.—*Herbert N. Marsden; Gloucester, March* 9, 1871.

Erebia Ligea.—Has not Erebia Ligea as great a claim to be considered British as Doritis Apollo (or even Polyommatus Hippothoë), it being, I understand, formerly found in the Isle of Arran?—*James H. Rowntree; Scarborough, March* 7, 1871.

[Erebia Ligea and Doritis Apollo are about on a par in this matter. I think neither has a claim; but Hippothoë certainly existed in a state of nature, in the fens, some years ago. I have seen fifty living larvæ collected there, and have specimens bred from some of them.—*Edward Newman.*]

Economy of Hesperia Sylvanus.—It was, I believe, the opinion of the old entomologists that there was only one annual brood of this species. In that case, I presume, the assumption must have been that the May individuals seen on the wing had hybernated. I have myself taken specimens in early summer, in such very bad condition that it was difficult to persuade oneself that they had not long left the pupa. Sylvanus may be found at many seasons, in June and July, as well as in May and August. Its life-history may prove to be this: from eggs, deposited in the summer, larvæ emerge, which feed for a time and then hybernate, feeding again in spring, and becoming adults in May; from these butterflies appear at the end of May or early in June, continuing frequently on the wing for some time, and depositing eggs, which yield another brood of larvæ and August butterflies. In some years it may be that the spring larvæ, growing slowly, produce butterflies at a later date, and then the larvæ, of which they are the parents, may not attain their full size untill the ensuing spring.—*J. R. S. Clifford.*

Scarcity of Hesperia Linea.—I can corroborate the statement that this species is scarcer of late years. In Hertfordshire it occurred plentifully some twenty years ago, in places from which it seems to have disappeared; also in localities in North Middlesex, from whence it is not reported now. On Wimbledon Common, where it was once abundant, I see very few of late. In 1869 these butterflies were very numerous on the railway banks between Greenhithe and Northfleet, in Kent; and in meadows, near Swanscombe Wood, some stragglers.—*Id.*

The Breeding of Liparis Dispar.—Allow me to state, in reply to Mr. Melhuish, that the larvæ of the above species are exceedingly easy to manage in confinement. I have, in former years, reared nearly a whole brood more than once. The finest specimens I have ever seen of this particular race (if so it may be called), which is bred up in our cages, were fed upon willow and sallow; but these even were far inferior in dimensions to those individuals in collections, which were taken at large. As to the reason of the diminution in size, various speculations have been entertained. It has been asserted that these individuals are descended from others formerly taken in the North of England, where the species was supposed to have degenerated through an unfavourable temperature. Others attribute the dwarfing of the species to a withdrawal from this race, for some generations, of their natural food. There is no doubt the smallest specimens are produced from larvæ fed upon hawthorn, and oak also seems uncongenial to them. They will thrive more on the leaves of fruit trees, or on the willow, as before stated. The larvæ emerge about the beginning of April; nor do I think their appearance could be much hastened by heat, nor would it be desirable to hatch them out before food could be got. Possibly, by placing the larvæ in as far as possible a natural condition, and supplying them with an abundance of food, after some generations these home-bred individuals might be brought back to the typical size.—*J. R. S. Clifford.*

Boarmia perfumaria in the New Forest.—Whilst sugaring in the New Forest, at the end of last July, Mr. Milles and myself took a beautiful specimen of Boarmia perfumaria.—*Edward F. Bisshopp.*

Occurrence of Lepidoptera at Southend in June last.—Cucullia Umbratica; Euclidia Mi and Glyphica, common; Acidalia Subsericeata, not rare; Homœosoma Nebulella, several; Myelophila Cribrella, abundant; Penthina Marginana, several; Endopisa Pisana, common; Ephippiphora Trigeminana, common; Stigmonota Regiana, common; Dicrorampha Saturnana, common; Dicrorampha Sequana, common; Catoptria Citrana, several; Argyrolepia Æneana, rare; Argyrolepia Dubrisana, several; Coleophora Deauratella, six; and larvæ of Eremobia Ochroleuca and Hesperia

Linea.—*William Machin; 21, Argyle Road, Carlton Square, Mile End, London, March* 15, 1871.

Work on the Species of Coleoptera.—Can you kindly inform me of a book on Coleoptera, for a beginner, who has derived nearly all he knows from the chapter on Coleoptera written by you in Greene's 'Insect-Hunter's Companion.' Is there one published giving a description of all the British Coleoptera? something after the style of your 'Butterflies and Moths.'—*J. Wiglesworth; 1, Brougham Terrace, Liverpool, March* 13, 1871.

[I know of no work in which the species of British Coleoptera are described except Stephens' 'Manual of British Beetles,' which is out of print, although a copy may now and then be obtained second hand: but this work differs from both my 'Butterflies' and 'Moths,' inasmuch as it gives no figures of the species.—*Edward Newman.*]

Larva of Sesia Bembeciformis.—On Friday, March 3rd, when making an early visit to the woods, I observed, where the woodman had cut, some full-sized round sticks from the sallow stubs: a number of orifices were exposed, which, on examining, proved to be the work and habitat of a larva of creamy white colour, one and a half inch long, or more: the orifice measured about three-eighths to half an inch over, beginning from the root; the larva worked upwards.—*James A. Tawell; 30, Compton Terrace, Islington, March* 7, 1871.

[I think, in all probability, the larva was that of Sesia Bembeciformis.—*E. Newman.*]

Museum at Clifton College.—A Museum of Natural Science has been recently started in Clifton College. I shall thankfully receive any donations of Lepidoptera, however common, if in good condition. Of course, all expenses of carriage, &c., will be defrayed by me.—(*Rev.*) *J. Greene; 30, Apsley Road, Redland, Bristol.*

Parasites on Canaries.—I believe that the tick mentioned by you as infesting domestic birds is the same as that described and figured in Küchenmeister's 'Manual of Animal and Vegetable Parasites' as Dermanyssus Avium, belonging to the Acarine family Gammasidæ, and is allied to the mites we so often see parasitic upon Coleopterous insects, especially upon clavicorn and lamellicorn beetles. I have compared the mites found in bird-cages with the figure given of Dermanyssus Avium in Dr. Lankester's translation of the work I have mentioned ('The Manual of Animal and Vegetable Parasites,' by Fredrich Rüchenmeister, vol. ii.; published by the Sydenham Society). The figure accurately represents the species usually found in bird-cages, with the exception that it differs in the length of the legs, but perhaps I have only seen immature specimens. The description of its habits coincides almost exactly with that given in your last number. This author and several other German writers think that this mite has occasionally, under certain conditions, been found parasitic upon the human body; and this is a point on which I have sought, in vain, for further information.—*Henry Charles Lang; University College, London, March* 14, 1871.

[I have also been favoured with the following cutting from the 'Field' newspaper, of the 23rd of August, 1862.—*Edward Newman.*]

Parasites on Canaries.—In rooms birds ought to be more free from vermin than those bred in cages, simply because there are less haunts for the vermin than in cages, especially where there is much wood-work; and it gives the birds a better chance of ridding themselves of the pests by bathing and exercise. But in breeding seasons the nests are the principal haunts for the bug, owing to the young being in them. This shows the necessity of strict attention in supplying fresh nests. I always make a practice to give a clean one a day before hatching, and another in five or six days after. When giving the fresh nests dust them with the insect-powder, which I have adopted for years. I use both boxes and baskets, and to every fresh one I apply (before making the nest) inside train-oil, but, of course, not in any quantity to injure the old birds. This oil I have found of more service than anything else I ever used. At the commencement of the breeding season I make a mixture of camphor (dissolved in spirit of wine), turpentine and soft-soap, and dress all joints and crevices with a brush. Apply the oil to the ends of the perches. A solution of camphor, spirit of wine and turpentine may be used during the season, because it will easily find its way into the smallest crevice; but I find that when the wood has absorbed it the vermin will haunt there again. The solution is, for the time, deadly;

but cages well dressed with train-oil I have found to resist the vermin more than anything else,—in fact, to remain free from them during the season. Many object to the use of oil, being fearful of injuring their birds; but, after the cages have been well dressed and wiped, the birds can sustain no injury whatever, as the oil remains only in the crevices. Whenever a bug comes into contact with the oil death must speedily ensue, for the spiracles become stopped, and suffocation ensues as a matter of course. With respect to vermin, as proof of the serious effects caused by them, examine some of the bugs, and see how plump and red they appear after they have been devouring the blood of the birds; and also examine the young birds, in nests infested with vermin, when a few days old, and you will find that, though the old birds may feed them, their growth is checked, and they will appear pale and sickly. A want of colour in the young birds' mouths will tell, more than anything, that they are not doing well, and, unless this be remedied, they will soon die. If hens should breed well one year, it is no guarantee that they will do so another season; so do not suppose you are safe on this point, and calculate on so many young from them. Vermin may disappoint all hopes. Besides, there is no fixed rule how to treat hens, for they are like other living things, varying much in temperament, some being very familiar and others very timid. These matters you will prove by experience. However, under the most favourable circumstances, it is unwise to be continually meddling with the nests while containing eggs or young, for many a hen, that might have proved good, has been spoiled by so doing. Many imagine that when the old birds have fed their young for a few days, and then neglect them, that they must bear the blame as being unnatural parents; but there is a cause for so doing. It is at about this period that the mother becomes fonder of her offspring, and is fearful to leave her nest, and devours the food herself instead of supplying the young. I have no doubt that many breeders have noticed the hens continually rising up and, as it were, pecking at the inside of the nests. Why does this happen? Because the nest is troubled with vermin, and is every moment further weakening the young by robbing them of their life's blood. They at last become so helpless as not to rear up their heads for food, and death speedily finishes them. Fancy yourself annoyed with living torments, in proportionate size, robbing your veins, with a want of nourishment to supply the loss. Birds, in nests, are generally attacked most under their wings; and it is very often the case you will find some of the bugs in their ears. Now, the greater part of this may be prevented by supplying clean nests, well-shaped and rounded with a proper-formed iron or egg, making it resemble, as much as possible, the old ones containing the young birds, which, when taken away, may be destroyed by burning. Young birds, when caged off, should be put in thoroughly clean cages, and, at about five weeks old, they will begin to crack canary-seed. Encourage seed-eating by gradually taking them off egg and soft food. Supply fresh water daily, with good grit-sand in their cages. Keep the young out of draughts; for when once a young bird is seized with cold it is a chance it lives. Do not supply whole hemp-seed too soon; by so doing you try their tender mandibles. Be careful (if green food is at all given) in selecting only the seedy parts, such as the tops of groundsel, shepherd's purse and plantain; but all must be ripe. My choicest birds (Belgians) I never supply with green food after they are caged off, for it encourages purging. When purging does happen keep the birds warm, apply one or two drops of castor-oil, and after that give bread and milk sweetened with honey, and, if possible, soon remove the birds to a large cage or room, for a fly, which so much promotes strength. I do not advise anyone to keep their birds in damp places; but I have always found less or no vermin there exist.—*Geo. J. Barnesby; Abbey Street, Derby.*

The Tsetse.—The plains on the south side of the Lobombo Mountains, towards Delagoa Bay, was the only district where I met with the tsetse fly, and immediately below the mountain they seemed more numerous than at a greater distance. The belief of the natives in the dangerous character of the fly is universal; and I never heard any doubt expressed about it among the white hunters, many of whom have come to this district for many years. We were told that if we took our dogs over the mountains they would be bitten by the fly, would go blind in a few days, and die in ten days or a fortnight. The fly, which was pointed out to us as the tsetse, was very like a small horse-fly (cleg, as they are called in Lancashire); it was very common, and answered the description and picture, in Livingstone's first book, accurately. We were frequently bitten by them: the bite was very sharp, and felt like a red-hot iron run into the flesh, but it did not leave any mark or inflammation. I caught several, but mislaid them somewhere, as I have been unable to find them. The dogs were frequently bitten; and one of them went blind within a week, and died in about a fortnight. The other did not show illness for some time later; and, as we left him with some of our party, knew nothing more about him than that he died. The fly appears only at certain seasons, and in limited localities. The head of a Kraal, about thirty miles distant from the point, where we found the tsetse most abundant, told us at that time the fly was not in his district, and pointed to a heifer and some goats, which he said he intended to send away before the fly season came on. There is a general opinion that the fly is connected, in some way, with the larger game, elephants, rhinoceros, &c., and some think that it breeds in their dung; but I never heard of any proof of this. Mr. Erskine was the only person that I met with who expressed any doubt about the tsetse; but, as I have not seen his paper, I do not know why he doubts it. The fly district nearest to Natal is about twenty days' journey distant. Our horses and oxen we did not take into the fly country at all.—*E. C. Buxton.*

[Mr. Buxton has kindly sent the information in reply to my note, at p. 217 of this volume.—*E. Newman.*]

Death of Mr. Jethro Tinker.—Mr. Jethro Tinker departed this life on the 10th inst., and was interred, at the parish church of Mottram-en-Longendale, on the 15th. He was one of those old hard-working entomologists and botanists to whom we, of the present day, owe so much, having followed Entomology and Botany for nearly seventy years. He was, for some time prior to his death, president of the botanical section of the Stalybridge Naturalist's Club; and was ever ready to impart information and instruction to anyone seeking knowledge. He had lived to see many changes in the scientific world, being in his eighty-third year. His loss will be much felt by us in this part of the country; and I have no doubt but many, in all parts, will be able to recall to memory many of his acts of usefulness in the Science of Entomology. It is intended to raise a monument to his memory in Stalybridge; and already a goodly amount of money has been subscribed by the friends and admirers of Natural Science; and should any of his friends, elsewhere, feel desirous of contributing to so praiseworthy an object, their subscriptions can be directed to the Secretary of the Stalybridge Naturalist's Club, and will be duly acknowledged. Perhaps, if any should wish to transmit through you, you would oblige us by receiving their donations, and transmitting them to us at your convenience.—Communicated by *D. Jolliffe; Secretary to the Stalybridge Naturalist's Club, Stalybridge, March* 20, 1871.

[Mr. C. S. Gregson has kindly sent another notice.—*E. Newman.*]

Death of Mr. Henry Denny, A.L.S.—Mr. Henry Denny, the curator of the Leeds Philosophical and Literary Society, died on the 7th of this month (March), at the age of 68. The previous part of his life was spent in Norwich, of which town he was a native. He was the first paid curator the Leeds Philosophical Society has had. His office was at first described as that of sub-curator, and he entered upon his duties with the recommendations and "decided testimonials of gentlemen eminent for scientific attainments, and fully competent to form an opinion of the requisite qualifications for the post." In the first report, presented after Mr. Denny's appointment, the council stated that they had found him in every way qualified for his office; and, in the succeeding reports up to that of 1870, when the Society celebrated its jubilee, the council—although always changing hands, and now entirely changed from what it was when Mr. Denny entered the service of the Society—scarcely ever neglected the opportunity of referring to the advantages conferred upon the institute through the exertions of its curator. In the last report testimony is borne to the ready munificence of the Leeds townsmen in contributing to the completeness of the Society's museum, a liberality, it is added, "evoked and guided by the knowledge and untiring energy of its curator, Mr. Denny." It was thus that Mr. Denny made the museum what it is. Wherever he found missing links in the chain of natural history, archæological or geological specimens that were being formed by the Society, he was never at rest until, in the first instance, he discovered an object that would help to make the chain complete; and, in the second place,—not so difficult a matter as the first, but an undertaking, nevertheless, requiring much discrimination,—until he found some friend to the Society who was willing to increase its stores. And so the work went on from year to year; Mr. Denny never happier than when, at the commencement of each session, he could read long lists of contributions, and found the lecture-table too small for the first public presentation of newly-acquired treasures. The acquisition of specimens, however, does not represent the most important part of Mr. Denny's duties. So soon as he became connected with the association he set himself to arrange and classify the objects under his care; and as these objects increased, and the building in which they were displayed was extended, he found before him duty requiring the closest application and the exercise of the greatest care. In this work he received much assistance from the late Mr. John Hey, and the result was that he had not been curator more than a very few years before the museum received as thorough a re-organisation as was then possible. It was not until 1858, however, that that admirable arrangement of the specimens, which is now so pleasant a sight to every visitor to the museum, was fairly commenced. In that year the arrangement was improved in anticipation of the visit to Leeds of the British Association, and Mr. Denny then succeeded in completing several important groups in the animal kingdom that were either wanting or imperfectly represented. During the session 1831—3 Mr. Denny was appointed an honorary member of the Society; and, in the course of time, his designation of sub-curator was withdrawn in favour of the name of general curator and assistant-secretary, which more clearly indicated the position he held of late years. In the session 1849—50 a series of meteorological instruments were presented to the Society; and with these, and other instruments subsequently acquired, Mr. Denny was in the habit of filling up the very elaborate and interesting tables provided by the British Meteorological Society. He was ever active, but never too busy to be inattentive to the most casual visitors to the Institution, or to give information, regarding the museum and matters in which the Society has an interest, to all to whom such information was likely to be of service.

THE ENTOMOLOGIST.

No. 90.] MAY, MDCCCLXXI. [Price 6d.

Answers to Correspondents.

[I have found so much time occupied in writing a separate letter to every querist, that I have at last determined to resort to this plan of answering queries *en masse*. None of the letters answered in this number of the 'Entomologist' were intended for publication, and, therefore, I do not give the names of my correspondents, but I will gladly do so whenever requested. In all cases I propose to add any collateral information I may possess and can compress into a few lines, even although not definitely required by my correspondent.—*Edward Newman.*]

Mr. Doubleday's Health. — Very many inquiries have reached me respecting my friend H. Doubleday, who has been absent from home for four months in consequence of illness. I am now able to hand my readers the agreeable information that his health has improved, and he has returned to his old residence at Epping. I trust that his life may be prolonged for some years, and I hope he will be able to pursue his favourite studies in Natural History. Should this be the case I have no doubt that his zeal in assisting others will be as great as ever; but his medical adviser wishes him to abstain from much exertion at present.

Sirex Juvencus.—The mummy-like objects in the deal are specimens of Sirex Juvencus, a timber-eating insect of the hymenopterous order Phytophaga: the extraordinary difference amongst them in size is not specific; it is usual for timber-feeding insects to vary in this remarkable manner; the difference in colour is sexual; those with yellow bodies and black hind legs are males; those with steel-blue bodies and yellow hind legs are females. Nevertheless, there appear to be three species inhabiting this country, and each confines itself to a single species of fir; these are:—1. *Laricis*, with black antennæ, and a black tip to the abdomen in the male:

the larva feeds in larch wood (*Pinus Larix*). 2. *Sylvestris*, with black antennæ, and the male without the black tip to the abdomen, which is entirely yellow: the larva feeds on the wood of the Scotch fir (*Pinus sylvestris*). 3. *Abietis*, with antennæ black at the tip and yellow at the base: the larva feeds on the wood of the spruce fir (*Pinus abies*). Two of these insects have probably been introduced into Britain, seeing that the trees on which they feed are not considered to be native. Another large and rather common species of Sirex, S. Gigas, has yellow antennæ, and a yellow-bodied female with one or two black bands. Why all the specimens sent me in the piece of wood should have died I cannot say.

Roses of the Larch.—Everyone must have observed the beautiful little pink roses standing erect on the larch twigs at this time of the year. A singular and ingenious hypothesis was started last year that these were galls, and were produced by the puncture of an undiscovered species of Cynips. This idea having been ventilated both on the Continent and in Britain, I was induced to ask my friend Professor Oliver, of Kew, as to their true nature; and he decides, without hesitation, that they are the normal female blossoms of the larch, and kindly permits me to use his name in publishing this decision.

Galls of Quercus toza.—The large and beautiful galls from the West of France are produced on the Quercus toza by the puncture of Cynips Quercus-tozæ, an insect named by Fabricius.

Bee of the Egyptian monuments.—The bee sent me as obliterating the sculpture on Egyptian monuments is Chalicodoma sicula, one of the mason bees or mud-builders. It is thus, in obedience to a natural instinct, robbing us of one of the most interesting records of bygone ages, for it seems highly improbable, or, indeed, almost impossible, that these sculptures should ever be restored to their pristine beauty and sharpness by the removal by human hands of this insect masonry.

Larva in Elm wood.—The larva is that of the Leopard moth (*Zeuzera Æsculi*). It is by no means an uncommon thing to find this larva in elm. It has done great damage to the elms in St. James's Park, where the perfect moth may be found in the summer by examining the trunks of the trees in the early morning, that is between four and five o'clock: after the latter hour most of the moths fall a prey to the irrepressible sparrows.

Red Velvety Acarus.—The insect sent is the Acarus holosericeus of Linneus, Trombidium holosericeum of Leach. This beautiful creature is *not* the red spider of gardeners, which, I think, is not to be found at this early season of the year. The Trombidium is apparently harmless; it crawls over all kinds of low plants without doing them any apparent injury, and lays its eggs on stones: these eggs have sorely puzzled our microscopists, and have been described as Fungi, to the great delectation of entomologists, who are rather too apt to ridicule the labours of that unlearned body. Should the time ever arrive when Microscopy and Entomology shall go hand in hand, important discoveries will certainly result.

Acarus in Sheep.—In reply to three inquiries on this annoying animal, I regret to acknowledge my inability to give any available information. Every farmer who has observed and examined it declines to distinguish it from the tag or sheep-tick, so universally known as an inhabitant of wool. This last is very familiar to entomologists under the name of Melophagus ovinus; it is one of that anomalous group of dipterous insects, the eggs and larvæ of which are never extruded by the usual process, but pass these stages within the abdomen of the mother: when full grown they change to an egg-shaped chrysalis, which is extruded by the ordinary channel for the passage of an egg. In the second volume of 'Transactions of the Wernerian Natural History Society of Edinburgh' is an excellent paper, by Dr. Leach, on these curious insects. The specimens, however, which have been sent me for examination, have no affinity with the Melophagus, but belong to the genus Ixodes of the tribe Acaridea, and are certainly allied to the dog-tick, Ixodes Ricinus.

The Tsetse.—After reading Mr. Buxton's note (Entom. 284) I think there must be a general feeling of regret that so accomplished an entomologist should traverse the Tsetse region, should be frequently bitten by a Hematopota or "cleg," should prove from personal experience that its bite left no mark or inflammation, and yet should remain satisfied with the facts that "the belief of the natives in the dangerous character of the fly is universal," and that "he never heard any doubt expressed about it among the white hunters." This surely is no proof of the existence of such a formidable insect as the Tsetse is represented to be. All that Mr. Buxton's note proves is that "clegs" in South Africa are numerous, and that their bite is innocuous to human beings.

Benzole for destroying mites.—Mr. C. E. Holford inquires whether chloroform is the best remedy for mites in insect cabinets. I think not: I much prefer benzole.

Eastern Entomological Society of London.—This Society, established in 1862, held a conversazione at its rooms, 333, Mile End Road, E., on the 19th and 20th of the present month; the company, consisting of the members and their friends, exceeded four hundred in number; and many objects of great interest were exhibited, including seventy boxes of British insects, illustrating all the families of our native Lepidoptera, and a considerable number of Coleoptera, Diptera, Orthoptera and Hymenoptera, among which were many rare and some unique specimens. Mr. Machin exhibited two well-filled boxes of European Lepidoptera; and Mr. Chitty a specimen of Cabera pusaria suffused with lead-colour. Upwards of one hundred and fifty volumes on insects were on the table, and among them Curtis's 'British Entomology,' Stephens's 'Illustrations of British Entomology,' Drury's 'Exotic Insects,' Wilkes' 'British Insects,' and Humphrey's 'British Butterflies and their Transformations.' There were a great many novelties for capturing insects shown, such as nets, sugaring-apparatus, larva-tins, laurel-boxes, setting-boards, drying-houses, collecting-boxes, and every improvement known up to the present time; also several most ingenious contrivances for preserving larvæ, which were exhibited by Mr. Dugwell.

Nyssia lapponica in Scotland.—Mr. Bond informs me that the Rev. Mr. Curzon possesses a specimen of Nyssia lapponica, taken by a collector of the name of Warrington, whom he employed this spring to search the Rannoch district, especially with the view of obtaining Petasia nubeculosa.

Prizes for Collections of Economic Entomology.—The following prizes have been offered by the Royal Horticultural Society:—1. A prize of £10 for the best collection of British insects injurious to any one plant, as the oak, pine, cabbage, wheat, &c. (the choice of the plant being left to the competitor). The insects to be shown as much as possible in their various stages of development,—eggs, larva, chrysalis and perfect insect. In judging a preference will be given to those collections which most successfully illustrate the life-history of the insect, and exhibit the mischief done, whether shown by specimens, drawings, models, or other means. Examples of the application of drawings, models and specimens to this purpose may be seen in the Society's collection in the South Kensington Museum. 2. A second prize of £3 for the second-best collections. 3. A prize of £5 for the best miscellaneous collection of any branch of British Economic Entomology, similarly illustrated. 4. A second prize of £2 for the second-best collection. The collections to be sent to James Richards, Esq., Assistant Secretary, Royal Horticultural Society, on or before the 1st May, 1872, each collection bearing a motto, and a separate sealed envelope with the motto on the outside, and the name of the competitor inside. The Society is to be entitled to take from any of the collections sent in, whether successful or not, whatever specimens or illustrations they may choose, at a price to be fixed by the judges. The judges to have the power to refrain from awarding the prizes should the collections seem not worthy.

EDWARD NEWMAN.

Entomological Notes, Captures, &c.

Sugaring for Moths.—I may supplement your reply to Mr. Butler's query by observing that I have not found it necessary to boil the mixture; in fact, without great caution, by so doing there is a probability of thickening it too much. The darkest foots sugar being used, if this is placed in some vessel previously warmed, boiling water then poured upon it and the compound diligently stirred, a saturated syrup may be easily obtained, which may be bottled, if needful, and kept ready for any occasion. The addition to this of a small portion of rum, at the time it is to be laid upon the trees or palings, gives the needful aroma. Oil of aniseed has been recommended by some: I have tried this, and found it useless by itself. Others recommend essence of almonds, about which I cannot pronounce. So uncertain a thing is sugaring for moths, even in the most likely localities, that the beginner at it must not be surprised if several successive nights turn out to be failures. And what tends to make the matter more provoking is, that the nights you might select as apparently suitable as regards temperature, moisture and so forth, will not prove to be so. Windy weather is, of course, bad; moonlight nights frequently so, but not always. Most success will attend sugaring for moths if it is done continuously. In the years 1865 and 1866 I tried this mode of trapping moths in a garden at Chelsea, on an average about every other night, from May to September. I regret now that I did not tabulate the results at the time, but, from memory, I should say that upon about half the nights there was "no meeting," and the nights when there was a levee did not occur oftener than once a week. It was hardly likely, so near London, that anything very special would turn up, though there were some species which must, I presume, have flown a considerable distance. Geometræ rarely appeared; and hardly a Pyrale, except P. fimbrialis. A notable proof of how London is spreading westward is furnished by the fact that now, after five years only have elapsed, sugaring is of little advantage, only such species as Acronycta Psi, Mamestra Brassicæ and Mania typica generally appearing.—*J. R. S. Clifford; Chelsea.*

Parasitic Acari on Cage Birds.—I find that these attack not only canaries, but also goldfinches and linnets. It was pointed out to me by a bird-fancier, that a frequent source of these is the bird-seed; and upon examination I have several times found them about in rape and hemp, as supplied from the shops; not in canary. To all appearance they devour the seed; if so, it may be assumed, perhaps, that they transfer themselves to the birds rather for the sake of the shelter their plumage affords than for the purpose of attacking them. No doubt there are species which do so; and I am inclined to think that they do migrate from the bird to the human subject, and *vice versâ*, from this circumstance, that when absent from home on one occasion my house was left in charge of a person suffering (as was afterwards discovered) from some cutaneous disorder, and the bird-cages were afterwards discovered to be swarming with Acari, though free from them previously. There is, of course, a possibility that neglect might have been the cause; though this was denied. —*J. R. S. Clifford; Chelsea.*

Early appearance of Anthocharis Cardamines, &c.—On the 7th of April I captured a male specimen of A. Cardamines. This is, according to my experience, a very early date for the appearance of this insect. Another specimen was also captured by a friend of mine on the 13th of this month. As a further proof of the earliness of the season, I may mention that I took a specimen of C. exanthemaria on the 13th, and of F. atomaria on the 14th of this month. I should be glad to ascertain if the season is early in other parts of the country.—*G. H. Raynor; Bordyke House, Tonbridge, April* 15, 1871.

Lepidoptera in Epping Forest.—From the 13th June to the 18th July last, in four days, I took the following species:—Acidalia trigeminata, Crambus pinetellus (common), Rodophœa Marmorella, R. suavella, Dichelia Grotiana, Spilonota Roborana, S. Rosæcolana, Catoptria Juliana, Semasia Janthinana (common), Carpocapsa splendana, Cleodora Cytisella (abundant), Gelechia Mouffetella, Coleophora Fabriciella; also larvæ of N. trepida (13), N. Chaonia (11), E. erosaria (8), A. prodromaria (4).—*William Machin;* 21, *Argyle Road, Carlton Square, Mile End, March* 9, 1871.

Butterflies near Wotton-under-Edge.—I have taken this last season, on the hills just above Wotton-under-Edge, two males of Polyommatus Corydon and one female, though we are miles from any chalk district; the female being remarkable for the highly dark brown ground-colour of the under side. Also a male of P. Adonis; a female of P. Alexis, measuring $1\frac{13}{32}$ inch across the anterior wings. Hipparchia Galathæa, which I never observed in the neighbourhood before, has shown itself in abundance these last two summers. I have taken, too, a specimen of H. Tithonus, female, having two black spots below the ordinary ocellated one on each anterior wing, the upper of the two being also ocellated. I have taken six V. Polychloros this season, here.—*W. E. Thompson; The Ridings, Wotton-under-Edge, January* 3, 1871.

[The variety of Tithonus with two additional black spots below the ocellus on the fore wings is not very uncommon.—*E. Newman.*]

Dasycampa rubiginea at Lyndhurst.—Whilst beating the sallows last night I took a specimen of Rubiginea; and in the last fortnight I have taken a good series of Miniosa.—*James Gerrard; Lyndhurst, April* 6, 1871.

Early Swarm of Bees.—A hive of bees, belonging to Mr. W. Walker of this town, swarmed yesterday: the swarm flew into an adjoining garden, and was hived there. I think this is one of the earliest swarms on record.—*W. Slade; London and County Bank, Buckingham, March* 24, 1871.

Vanessa C-album at Cambridge.—I do not know whether Cambridge has been noted as a locality where this insect has occurred lately, or whether it is commonly taken here. I saw a specimen in a lane near here yesterday, which settled close to my feet; but not having a net with me I failed to secure it. It was rather worn, but the species was easily distinguishable.—*G. H. Raynor; Clare College, Cambridge, March* 26, 1871.

Vanessa Polychloros in abundance.—Vanessa Polychloros has appeared this spring in some abundance in Suffolk. A few days ago I saw a splendid one in Ickworth Park; they are equally fine in my own garden, and on Saturday last (April 8th) I captured two good specimens, and saw several more at Mildenhall. I have carried one larva of A. Rubricata through the winter: it was originally reared on one of the smaller clovers, but now eats nothing but young leaves of Polygonum.—*A. H. Wratislaw; School Hall, Bury St. Edmunds, April* 10, 1871.

Extracts from the Proceedings of the Entomological Society, March 6 *to April* 3, 1871.

Hornet barking an Ash-branch.—Mr. Smith exhibited portions of two small branches of ash, from which the bark had been neatly removed all round. He had received them from the Rev. J. Hellins, of Exeter, accompanied by a note, in which Mr. Hellins stated that, one day last summer, he had observed a hornet busily engaged in removing the bark from these branches. Mr. Smith could not believe that the hornet was providing building-materials for its nest, as he had invariably found this to be composed of friable paper, apparently formed from dead or decayed wood. Upon referring to Réaumur's 'Memoires' he found that that keen observer had recorded a precisely similar circumstance, and he, Mr. Smith, was inclined to think the insect was endeavouring to extract the sap, from the inner wood, as food.

Parasite of the Peacock.—Mr. Dunning exhibited a parasite, which he had recently taken from a peacock. This was evidently the Pediculus Pavonis of Linné and the older authors; but, by all recent writers on these insects, it was termed Goniodes falcicornis of Nitzsch, who, in Germar's 'Zeitschrift,' actually gave Linné's name as a synonym, for what reason he knew not.

Malformation in the Antennæ of Lepidoptera.—Mr. Lewis exhibited examples of antennal malformation in Lepidoptera, comprising (1) a specimen of Melitæa Cinxia, in which the apical half of one antenna was aborted; (2) Cymatophora diluta, with one antenna congenitally wanting; and (3) Scopelosoma satellitia in the same condition, and, in this specimen, the corresponding eye was enveloped in a cuticle. He also exhibited Melitæa Cinxia, with malformed hind wings.

Galls of Campanula rotundifolia.—Mr. Müller communicated the following notes on a Cecidomyia, causing galls upon Campanula rotundifolia:—"Mr. James W. H. Traill, of Old Aberdeen, has sent to me several specimens of Campanula rotundifolia, gathered by him in August last on exposed braes, two or three miles to the north of that city, which specimens are infested by the larvæ of a Cecidomyia. They occur both in the seed-vessels, and in green, small, globular, monothalamous axillary galls, developed from buds. On some shoots almost every bud is appropriated by the gall, and one specimen presents a terminal cluster of them. Mr. Traill has suggested to me that the galls are, probably, abortive flower-buds, and I am inclined to concur in his opinion, owing to the presence of the larvæ in the seed capsules as well. One of the latter disclosed an immense number of unripe seeds, each one tenanted by the very young oval larva, the smallest quite white; older ones, of a flattened form, have the centre of the body longitudinally purple-red, and the remaining parts almost transparent. At this stage the larvæ looked very pretty in the seeds, of which they had consumed the contents, presenting the appearance of living rubies, cased in flat capsules of transparent horn. The adult larvæ had fourteen segments; they were elongate and of a reddish colour, with darker intestines; the first segment very slender and beak-like. In the full grown state they were lively; but in the earlier stages they appeared rather sluggish. I regret that mildew killed the whole brood. I propose for this species the name of C. Campanulæ, as its peculiar mode of life warrants my considering it a new species."

British Species of Oxypoda.—Dr. Sharp communicated "Notes on some British species of Oxypoda." After remarking upon the extreme state of confusion that existed respecting the species of this genus, Dr. Sharp proceeded to critical notes upon most of the previously recorded British species, and described four as probably new to science, *viz.* O petita, hitherto confused with O. cunicularia, generally distributed in England and Scotland; O. edinensis, from near Edinburgh; O. verecunda, from near London and in the fens; and O. tarda, from salt-marshes near Dumfries.

Immature sexuality, &c., of Insects.—Mr. Lowne read, "Observations on immature sexuality and alternate generations in insects." The author thought that species originated occasionally from the maturation of the sexual organs before acquiring the adult characters. He had been induced to believe that such is the case, from the early period at which the sexual organs first make their appearance in the embryo and larva, from the fact that some larvæ have been taken *in copulâ*, and from an analogous phenomenon which had been observed among the Echinodermata. In the course of the paper he had occasion to enter largely into details of correlation of development between the cutaneous and sexual organs in insects. He stated his belief that such correlations often gave rise to secondary sexual characters. The paper concluded with a comparison between acquired and direct larval forms. The author thought the larva and pupa of insects were probably all acquired, and not direct, stages of development. With reference to Mr. Lowne's remarks on the early development of the sexual organs in insects, and with a view of disproving a not uncommon idea that the sex is determined by the supply of food (or its quality) furnished to the larva, Mr. Briggs detailed some experiments he had made. A number of larvæ of Liparis dispar were separated into two divisions, about sixty in each. One lot were fed upon hawthorn, the other upon elm. In the elm-fed larvæ the imagos produced were about equal as to sex, but there were only two perfect females; the males of the ordinary size. In those fed upon whitethorn, the sexes were again about equal in number, but the males were much smaller and paler, whereas the females were much finer, and scarcely any of them imperfect. Again, with a view of determining whether any truth exists in the statements of old authors that larvæ differ in colour according to sex, Mr. Briggs experimented upon two forms of the larva of Trichiura Cratægi; one form being ringed, somewhat like the larva of Bombyx Rubi; the other mottled. These forms were figured by Hübner as of different sexes; but the first-named seemed to be dying out, and was described by none of the more recent writers. From a batch of eggs Mr. Briggs obtained about thirty larvæ of each form: firstly, a male imago, produced from a larva of the ringed form, was paired with a female of the mottled form; secondly, these conditions were reversed; thirdly and fourthly, each form was paired with its like. From these four experiments in no one instance was the ringed form of larva obtained; and it did not reappear after breeding in to the third generation.

Swarms of Chlorops lineata.—Mr. Dunning read the following letter received from the Rev. L. Jenyns, of Belmont, Bath:—"I see in the Proceedings of the Entomological Society (Part v. 1870, p. xxxiv.) notice of a communication, made at the Meeting of the 7th November, respecting large swarms of flies, referred to Chlorops lineata, which had appeared in September in a room in the Provost's Lodge at King's College, Cambridge. It may be worth drawing the attention of the Society to the circumstance of the same phenomenon having occurred, probably in the same room, in 1831, thirty-nine years ago, where it was witnessed by myself, the late Provost, Dr. Thackeray, having invited me to come in and see it. Of that phenomenon I published a full account at the time in Loudon's 'Magazine of Natural History' (vol. v. p. 302), and it was afterwards reprinted in my 'Observations in Natural History' (p. 275), published in 1846. In reference to the occurrence of this fly in King's College Lodge in September last, Prof. Westwood 'thought it was with a view to hybernation.' This in itself seems not improbable; but the remarkable thing is, in this case, that the same house, if not the same room, should have been selected by this species of insect for the above purpose over a period of nearly forty years, during which time there must have been a succession of many generations. On the occasion of the swarms in 1831, it was about the 17th of September, so far as could be remembered, that these insects first showed themselves; and it was thought that they had entered the room very early in the morning, by a window looking due north, which had been open during part of the night, having been first observed between 8 and 9 A.M."

Pollen-mass of an Orchid on the Eye of a Dipteron.—Mr. Verrall exhibited a dipterous insect, Pipiza noctiluca, taken by himself at Rannoch, to the head of which was adhering a foreign substance, apparently a fungoid growth. Several members dissented from this explanation of the nature of the substance in question, and thought it was probably the pollen-mass of an orchid.

Gall on the leaves of a Carex.—Mr. Müller exhibited a gall on a species of a Carex, concerning which he read the following notes:—"The present Lord Walsingham kindly sent to me, in the middle of September last, a growing plant of an undetermined species of Carex, collected near Thetford, in Norfolk, pointing out to me at the same time some curious galls on its leaves. They may be described as oblong, of the size of a grain of wheat, and as attached longitudinally to the blades of the Carex, sometimes in groups. When fresh they were of a paler green than the plant itself; in their present dry state they are coffee-brown, and remind one vividly, by size and colour, of the brown cocoons of certain Nemati. But this resemblance is only superficial; they form part and parcel of the plant, and derive, in their fresh state, their sap direct from its tissues. They are monothalamous. I potted the plant immediately on arrival, but, notwithstanding my constant attention, I have failed to rear the maker of these excrescences, so I record my observations so far, in the hope that other naturalists will be luckier than myself."

Gynandromorphism in Hymenoptera.—Mr. Smith exhibited examples of gynandromorphism in Aculeate Hymenoptera, and read the following notes:—"1. In 1836 I took Anthophora Acervorum, in the month of April, at Barnes, Surrey. In this example the male characters are very conspicuous, and are all situated on the left side, most conspicuously so in the head, thorax and legs. This specimen is figured in the 'Zoologist,' vol. iii., and also in my book on British Bees. 2. A second example of Anthophora Acervorum is in the collection of the late Mr. Walcott, of Bristol; but the sexual peculiarities of structure are much less apparent than in that exhibited. 3. Andrena thoracica. In this specimen the male characters are on the right side, and are observable in the antennæ, head and legs. 4. Nomada baccata. In this specimen the male characters are found to be on the left side; the head is about equally divided sexually; the antennæ having in the male sex the front side white, and also a white line at the inner margin of the eye, and the face covered with silvery hair; the male mandible is longer and pointed at the tip; in the female it is blunt. The thorax is coloured as in the female. The abdomen exhibits a strange peculiarity; the apical segment above is blunt, as in all the females of the genus, whilst beneath it is acute; there are the usual six segments above, beneath there are seven. Taken at Weybridge in 1845. 5. Apis mellifica. A monstrosity, partly male, partly worker. Antennæ worker on both sides; eyes worker; left anterior leg male; the right intermediate leg and also the posterior one male; the abdomen has the silky gloss of a male, and is in form partly so, being more blunt at the apex: the male organ of generation is partly protruded. This specimen was sent to me by Mr. Woodbury, of Exeter."

Lepisma saccharina.—Mr. W. A. Lewis called attention to the ravages reputed to be occasioned to books by Lepisma saccharina, with reference to Mr. Quaritch's statement made before the Society at the Meeting held on the 3rd of January, 1870. Although it was acknowledged that Lepisma damaged books by eating the paste of the bindings, thus causing them to fall to pieces, yet it had been considered impossible for it to bore holes in the books, as stated by Mr. Quaritch, such ravages being considered due to Anobium. However, upon referring to Dr. Packard's 'Guide to the Study of Insects,' Mr. Lewis found that the author (p. 623) endorsed the opinion that Lepisma is a borer. Mr. Horne alluded to the damage done to silk garments in India by Lepisma; the insect evidently attacking the silks on account of the stiffening matters in them, but, nevertheless, making holes in the fabric.

Grouping of British Macro-Lepidoptera.—Mr. W. A. Lewis read a paper on the order of the groups of the Macro-Lepidoptera. He criticised and condemned the arrangement introduced by Mr. Doubleday's List of 1859, and accompanied the statement of his views with a variety of comments on the modern works dealing with his subject, particularly Dr. Knaggs' 'Cabinet List of Lepidoptera' and Mr. Newman's 'Natural History of British Moths.' The paper first stated the order of arrangement by different authors from Linnæus to the present day, the conclusion arrived at being that the Linnean order was followed almost without deviation by every author down to the year 1859; also that the Linnean names of the different groups were adopted very generally until the same date. Mr. Lewis remarked that since 1859 we, in England, had been subjected to the discomfort of having two rival systems of arrangement, the followers of neither of which take the smallest recognition of the other. He noticed severally the groups of Doubleday's List, and stated, successively, reasons against the acceptance of the names Diurni, Nocturni, Drepanulæ and Pseudo-Bombyces; contending, in effect, that, in the case of the two first-named groups, the new names were, from their history, inapplicable; and as to the others, that both divisions had prior names. He also objected to the name "Pseudo-Bombyces," on the further ground that the scheme of classification, of which that group forms part, does not acknowledge a group "Bombyces," and therefore a group "Pseudo-Bombyces," in the same scheme, is a solecism. Mr. Lewis expressed his belief that the existence of the group Pseudo-Bombyces was entirely owing to the necessity, in M. Guenée's view, of maintaining the order of the Noctuæ which he, and other authors, had observed. To do this it was necessary to place them in the old position next after some Bombyciform genera, as the group had been arranged to "face towards" Bombyx. Mr. Lewis contended that the course followed was empirical, and was, besides, a failure, because the order of the Noctuæ still led one to expect the Geometræ at the end of the group. He contended, also, that the division of Bombyx had become a necessity when M. Guenée determined to place Geometra next to Bombyx without re-arranging Noctua, and that the *part* of Bombyx separated was then never in doubt, since Platypteryx (as everyone had remarked since Linnæus) would easily join the Geometræ and Ceruræ. He showed that M. Guenée had (in 1852) admitted that in order to give effect to the affinity of Geometra to Bombyx, it would be necessary to re-arrange Noctua, and in his plan, then proposed, made no suggestion that it would be necessary to divide Bombyx. Mr. Lewis also gave a variety of reasons against the new order. He also mentioned that some of the species now grouped as "Pseudo"-Bombyces had, by Latreille, been denominated "Bombycites Legitimæ," and some by Hübner "Bombyces veræ"; that the twenty-seven species now separated from the Bombyces by the whole of the Geometræ were, by Westwood and other writers, considered so closely akin to the "true" Bombyces that they were included *in the family* Arctiidæ; and that the Linnean order, from which the order of 1859 showed so great a departure, had received illustrations of its propriety in the nomenclature adopted by Denis and Schiffermuller, by Hübner, Horsfield, Boisduval, and many others, *viz.* Noctuo-Bombycidæ, &c., Semi-Geometræ, &c., Semi-Noctuales, &c. Mr. Lewis then expressed his opinion that, considering the concord among first-rate entomologists in favour of the Linnean order, the introduction of the new arrangement "*sub silentio* in a mere labelling list" was "an affront to Science." Considering recent publications, Mr. Lewis showed that Dr. Knaggs (in his 'Cabinet List of Lepidoptera') had failed to observe, in a number of instances, his own canon requiring preference of the female name when two names are simultaneously given to the two sexes of a species, instancing, besides others, the names "Janira," "Arcuosa," which should have been "Jurtina," *Linn.*, "Minima," *Haw.* He also complained that this publication, like Mr. Doubleday's Lists, assumed, though published with an object altogether different, to introduce changes in arrangement. With reference to Dr. Knaggs' proposal to place Pterophorus after Pyralis, he remarked that "if such a change was to be so brought about it was a waste of time ever to write a book." Remarking on a passage in Mr. Newman's 'Natural History of British Moths,' as to Mr. Doubleday having "approved" certain changes, Mr. Lewis declared that what entomologists want is not that changes should come to them "stamped with the approval of this or that leading man, but that an author, who proposes any change in nomenclature or arrangement, would first state all his reasons, and then leave the approval to *them*." Mr. Lewis strenuously protested against any changes in arrangement being introduced in a mere list of synonyms, and quoted M. Guenée as satirizing the practice. As to changes in names, he suggested that the legal maxim "Communis error facit jus" might with advantage be applied in cases of long-forgotten specific names, as he felt assured it would, in effect, be, in the case of the misapplied generic names detailed by Mr. Crotch in the Ent. Soc. Trans. for 1870; and he also condemned the insufficiency of the information given by all the English lists, showing that none of the lists stated the reason for a change of name, or whether the discarded name was supplanted by a prior one, or found to refer to a different species. With reference to Mr. Lewis's criticisms on recent changes in the arrangement of British Lepidoptera, Mr. Briggs remarked that Mr. Newman, in his 'Natural History of British Moths,' had united Tapinostola Bondii and Miana arcuosa into a genus termed Chortodes, giving no reason for this change excepting Mr. Doubleday's "approval." Mr. Briggs had examined the palpi of these two species, and found they were very dissimilar; he considered, therefore, that this union of the two into a special genus was unnatural.

[I have unfortunately misled both Mr. Lewis and Mr. Briggs in not having repeated in the body of the work the information so clearly given in the advertisement, and certainly known to every British lepidopterist, that the arrangement and names in my 'British Moths' are taken from Mr. Doubleday's List. When, therefore, it appeared desirable to deviate slightly from this announcement, it became also desirable to consult Mr. Doubleday on the subject, to obtain his approbation to the changes, and to state explicitly that I had done so.—*Edward Newman.*]

THE ENTOMOLOGIST.

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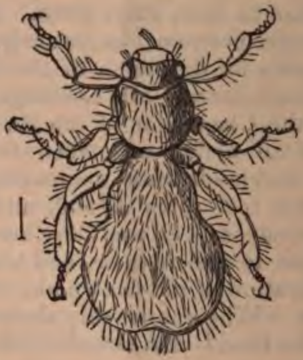
Answers to Correspondents.

Enclosure of Epping Forest.—My readers will recollect the struggle in which I embarked three years ago to prevent the enclosure of Epping Forest, a struggle in which my brother members of the Haggerstone Entomological Society took a most noble and patriotic part, assisting with funds and counsel, and with all the interest they could bring to bear on this great and national question. Feeble, indeed, are the efforts of that class to which we, of the Haggerstone, belong: we neither possess the funds nor the influence that can rescue public property from the grasp of the wealthy; but, in this instance, some of that very class have taken a part in the proceedings; and a remnant of that lovely forest is for a while rescued from the hand of the spoiler. The entire question is one of money; and we must not yet consider our property safe. It may remain with us for a time; but zeal for the good cause may, ere long, cool, while the rapacity of the aggressor knows no rest. Our great enemy is the very law that should be our greatest friend, and that fearful engine must be fed by money, and we, alas! have no means of satisfying its voracious appetite. Still, let us be thankful for the apparent victory we have gained, and enjoy the results of that victory, of right over might, before it is turned into a defeat. The following extract is from the 'Daily News' of the 29th of April:—"The House of Commons has once more resolved that Epping Forest shall be rescued from the incursions of the surrounding landlords, and preserved for the recreation and enjoyment of the people. A popular Parliament has in this renewed vote justified its popular origin and proved its popular sympathy. The only matter of regret in last night's vote is, that the Government did not profit by the experience of last year, and consent to Mr. Cowper-Temple's motion. It was quite evident from the whole tone of the debate that the division would go against them. They had, in fact, hardly any case. When Mr. Cowper-Temple had told over again the story which Mr. Fawcett told the House last year, Mr. Lowe could only stand up and offer to go on with the Bill which was practically rejected by public opinion, though by accident it escaped condemnation by the House. Mr. Gladstone himself was not more fortunate. Though he threw himself on the indulgence of the House, and spoke twice, he failed to show reason against the motion. Even the promise that the Government would do what it could was ineffectual against the impatience of the majority. They are as anxious as the House of Commons to preserve the Forest, but do not wish for the responsibility or the trouble of its preservation. The House has once more imposed on the Government the duty of preserving the Forest, by a majority of 197 against 96. There are about 3500 acres of Forest still remaining out of the 7000 acres on which all former generations of Londoners have wandered at will. The Bill in question gave up 2500 acres to the landlords, and kept 1000 acres for the public. This 1000 acres was, however, to be subject to the value of the rights of the commoners over the whole area, and it was reckoned that about 400 acres must be sold to pay the commoners for their rights. Out of the 7000 acres of which the Forest originally consisted, 600 would, therefore, have been reserved for the public, and all the rest would have gone, as 3500 acres have already gone, into private hands. The difficulty is that neither the rights of the Lords of the Manors, nor those of the Commoners, nor those of the Crown, are at all clearly defined. One thing, however, is obvious. Whatever the rights of the Crown are, they have kept open those 7000 acres of land during the whole course of English history down to our own day. Neither the greedy barons of the Middle Ages, nor the mercenary courtiers of later times, ever filched the land from the enjoyment of the people. As lately as 1854 seven thousand acres remained, and were still dedicated, as they were at first, to the public recreation. About that time some Commissioner of Woods and Forests conceived the splendid idea of turning the Crown rights into cash. The neighbouring landlords were very willing to buy, and the rights over about 4000 acres were sold. They produced the miserable sum of £18,503 16*s.* 3*d.* For this small sum those magnificent lands were transferred to the complete private possession of the Lords of the Manor, and all right of the public to go upon them ceased. Mr. Gladstone assumed that Mr. Cowper-Temple's motion would call for the expenditure of public money. But Mr. Vernon Harcourt pledged his knowledge, as a lawyer, to the statement that no money need be spent, and that if all the forestal rights of the Crown—rights described by Mr. Cowper-Temple as those of hunting, shooting and recreation—are asserted and maintained, the whole 3500 acres must be kept open. The real difficulty is, that the Lords of the Manor have learned to defy the Crown. Even now the trees at High Beech stand marked for the woodman's axe; and nobody seems to have power to command the woodman to spare those trees. All round the still remaining open space petty enclosures are going on; and those who are responsible for the rights of the Crown do nothing to stop the encroachments. Mr. Lushington, accompanying a deputation to the Chancellor of the Exchequer two years ago, said that if an action was taken to force the Lord of a Manor, who had made some encroachments, to disgorge the land, it would cost some £1500, and would probably succeed. If it did succeed, all who have made encroachments would at once have to resign them, and the Forest would be saved for the recreation of the Crown and of those whom the Crown represents. Why cannot this simple method of protecting the land be tried? Mr. Beresford Hope reminded the House that hitherto nearly all that had been done in saving open spaces had benefited the population of the wealthy and open districts in the North and West. Wimbledon and Wandsworth Commons and Hampstead Heath are even now being set aside to popular recreation and enjoyment for ever, but all belong to the West and North. Epping Forest is the holiday haunt of the working population of the East. For generations the poor of London have spent their holidays among its trees and underwood and on its open glades. Surely the Crown cannot better do its duty to these vast populations than by throwing the shield of its unquestionable rights over the Forest. The House of Commons has earned their gratitude by once more resolving that the Forest shall be kept for the people; the Crown will share that gratitude, if it is shown that its rights are to be exercised for the people's benefit."

When I am gone to that place from whence there is no return; when this little effort is defeated by the hand of the aggressor; I trust some future entomologist may engrave on my tombstone:—"He *tried* to save the People's Forest for the people." I desire no better epitaph.

Insects infesting the Sheep.—1. *The fag or tick.*—The note in the May number has elicited several highly interesting communications, showing that there is great anxiety on the part of farmers and others to obtain more correct information. The fag or sheep-tick, of which I give a figure copied from Walker's 'Insecta Britannica,' vol. ii. pl. xx. fig. 6, is



the most familiar. It belongs to that strange and aberrant group of Dipterous insects, which are distinguished from all others by their peculiar metamorphosis, which has been thus described:—"The species of this family pass their egg and larva state in the body of the mother, and when born are pupæ, or larvæ just ready to assume the pupa state, as is proved by their size, which nearly equals that of the parent fly; by their slight motion when first extruded; by spiraculiform points which run down each side of them; and by their changing into perfect flies. Each female produces only a single egg or ovipupa." This rather disgusting-looking creature lives entirely in the wool, among the fibres of which it crawls with great facility by means of its long, curved, bifid claws: the oripupa is deposited at the roots of the wool close to the skin.

2. *Mr. Cordeaux writes as follows on this Pest:*—"The fags are common alike to all our breeds of domestic sheep, and their prevalence in some districts during the present season I attribute, in a great measure, to the scarcity of keep during the past year. When sheep are shrinking, or ill fed, and 'doing badly,' these pests increase. They are, when numerous, extremely prejudicial to the welfare and improvement of the animal they infest; constantly irritating and causing the sheep to rub themselves, and to pull out the wool with their mouths ('pluck themselves,' as our shepherds call it): in fact, they keep the sheep in a perpetual worry, preventing rest, and, consequently, altogether stopping or greatly retarding the fattening or well-doing of the animal. No flock is without them: that they should, however, exist in numbers injurious to the sheep is *undoubtedly* the fault of the careless farmer or flock-master; as with proper attention they are easily kept within bounds. My own plan is, as soon as possible after clip time (by which process the elder sheep are pretty well cleared of these vermin), to dip the lambs in some of the various compositions used for this purpose; and in November to salve the whole flock with mercurial ointment, which is rubbed at intervals in streaks along the skin without smearing the wool. This process not only gradually destroys the fags, but also greatly improves the growth of the fleece and the health of the animal. In a badly-fed and neglected flock the fags increase rapidly."—*John Cordeaux; Great Cotes, Ulceby, Lincolnshire, April* 12, 1871.

3. *The Bot or Nose-fly of the Sheep.*—The life-history of this fly is well known: its eggs are laid on the inner margin of the sheep's nostril, from a single one to seven or eight in each sheep, and these, on becoming larvæ, enter the frontal and maxillary sinuses, and, it is said, even the horns; but of this I am unable to speak from my own observation. I have found many in the frontal sinuses, having obtained the heads from a butcher: they appear to me to feed on the pus caused by the irritation, but, perhaps, also on the healthy secretions. When the larvæ are young they are perfectly white and transparent, except two small, black, horny plates: as they

increase in size the upper surface becomes marked with two brown lines on each segment, the anterior being shorter and narrower than the posterior; and some spots are also observable on the sides: they consist, as usual, of twelve segments besides the head. When placed on a rough surface these larvæ crawl with considerable activity, first fixing themselves by two jaw-like hooks, with which the head is furnished, and thus drawing up the body, which is quite without legs. When full grown they fall through the nostrils of the sheep and change to pupæ on the ground among the herbage, and, not unfrequently, attached to a blade of grass: in two months the pupa-case splits open and the perfect fly comes out. Sheep are exceedingly annoyed by these flies, and to escape them will often be seen lying down in cart-ruts with their heads close to the ground; at other times we see them huddled together in a dense crowd under a tree, each having its head turned towards the trunk of the tree and its nose pushed into the wool of the one standing before it. It is a very general opinion that the operations of this insect, being carried on so near the brain, cause that *vertigo*, or giddiness, so well known as a serious and most fatal disease; but my friend Mr. Reeks, who has had great experience, doubts this conclusion, and gives the following reasons for his incredulity:—"(1) Young sheep go 'giddy' at all seasons of the year until they are about eighteen months old, but mostly so in the dead of winter, no matter how severe and frosty the weather may be. (2) A giddy sheep *never* recovers; but would most assuredly die if not killed. (3) Giddiness is transmitted through several generations by sheep in the same flock, which have not, however, been affected. (4) Giddiness will invariably arise from continued interbreeding, and is very similar to the imbecility in the human species by continued intermarrying. I will give you a case in point:—Supposing a farmer has four hundred ewes, which have bred lambs this year from lambs (rams), which were their own offspring last year: this will not cause giddiness; but if they (the rams) are used next year with their sisters, so to speak, it is almost a certainty that, perhaps, ten per cent. of the offspring of these young ewes will go giddy; and if the process of interbreeding be continued for another year, or so, it will take several generations to get giddiness out of the flock, and the per centage of deaths will be much greater the longer it is continued. To illustrate my meaning in another way:—Supposing a farmer equally divides a flock of four hundred ewes, and continues to interbreed with two hundred, while for the other two hundred he goes to some ram-breeder who, he knows, is continually importing fresh blood into his flock, the result will be that, although both flocks are kept side by side in the *same field*, the young of the former *only* will go giddy; and if, by chance, *one* should go giddy from the latter flock it would point to some indiscretion in breeding in a former generation. Now, if in such very plain and straightforward cases as quoted above the mischief is caused by a 'fly,' how does the insect discriminate between the two flocks? There may be two kinds of giddiness; but the above is the only form with which I am acquainted."—*Henry Reeks.*

4. *Flesh-flies or blow-flies.* — Mr. Reeks, in answer to an inquiry of mine, says:—"These flies deposit their eggs or living larvæ in the wool of sheep, generally about the root of the tail or behind the shoulders, anywhere, in fact, where the wool is most greasy. The larvæ of these flies are most troublesome to shepherds in the latter part of May and June, until the sheep are sheared, and much later in the summer with lambs, unless they are dipped in a preparation of arsenic and soft-soap."—*Henry Reeks; North End, East Woodhay, Newbury.*

Having for many years been acquainted with the mischief done by these flies, often causing death to the sheep and great loss to the farmer, I am most anxious to learn, entomologically, to what species they really belong; and I shall be truly grateful for any information tending to clear up this very obscure point. The larvæ or maggots cannot, I am aware, be obtained without considerable trouble; nor can the flies be reared from them without care and perseverance; yet as the subject is one of such great importance to the sheep-owner, I trust I shall receive the help required.

Haltica fuscicornis an enemy of seedling Saintfoin and other Leguminosæ.—Mr. Reeks has sent me more than fifty specimens of a small beetle, which is now doing incalculable injury to the young plants of saintfoin, &c. Directly these seedlings make their appearance above ground the beetles seem to be ready on the spot to fasten on the seed-leaves, and thus devour the plants before they have any time to acquire size and strength to resist the attack. It is probable that much rain in the spring would greatly retard the progress of the beetle; but, then, no farmer desires a wet spring. I have not, of course, worked out the life-history of this little pest, as I have done that of its congener the turnip-fly or turnip-flea; but I do not doubt the larvæ will be found abundantly on the older plants in June; but as yet it is unknown. In the meantime I will invite attention to this little beetle by describing its colours: — The antennæ are dull-red, slightly darker towards the extremity; the head is red, and the eyes black; the thorax is exactly of the same red colour as the head, and so are the legs; but the body is nearly black, and the wing-cases are dark metallic-green and brilliantly polished. This beetle is the Chrysomela fuscicornis of Linneus, described at p. 595 of the second volume of the 'Systema Naturæ' (thirteenth edition), and the Haltica fuscicornis of Stephens. The Linnean name of fuscicornis must be adopted, although the beetle has become better known under De Geer's name of rufipes, which has been adopted by Panzer on the Continent, and by Marshall, Donovan and Samouelle in this country.

Labia minor flying.—1. At five o'clock this afternoon I noticed something which may interest you. Whilst I was in our small garden I saw, what I imagined to be, a Tinea fly up from a lavender bush and raise itself about three feet in the air. I immediately stepped after it: it continued its flight at about the same height for about twelve or fifteen feet, when I knocked it down with my open hand into the path, and I was surprised to find it not a moth at all, but what I take to be an earwig. I send you the specimen to examine, and say whether I am right. 2. I should be glad if you would give me the title of any *good* work on Diptera and Hymenoptera. —*Frederick Enock; 48, Tollington Road, Holloway, May* 5, 1871.

[1. The little insect is Labia minor: it is well known as a *flying* insect; it is allied to the common earwig, but is not identical. 2. Walker's 'Insecta Britannica, Diptera,' in three volumes, with descriptions of the species and figures of the genera, is the only work with which I am acquainted on British Diptera; the price is 18*s.* per volume. On British Hymenoptera we have several excellent works: (1) Shuckard's 'Fossorial Hymenoptera,' 1 vol., with descriptions of all the species and outline-figures of the wings of the genera, price 14*s.*; (2) Smith's 'Catalogue of the British Bees,' with descriptions of the species and outline figures of the genera, price 6*s.*; (3) Smith's 'Catalogue of the British Fossorial Hymenoptera,' with descriptions of the species and outline-figures of the wings, price 6*s.*

Nyssia lapponaria in Scotland.—In the notice of the obliging but hurried communication made by Mr. Bond on the capture of this insect there are two mistakes, neither of great importance, but both requiring correction. Mr. Roper-Curzon, who is the owner of the insect, is not a clergyman, but a barrister; and Mr. Meek, not Mr. Curzon, employed Warrington as a collector. Mr. Meek has obligingly shown me the specimen, which is a very beautiful one. The species is figured, in the 'Annals of the Entomological Society of France,' as the Biston lapponaria of Boisduval; and there is an excellent figure of it (440) in Herrich-Schæffer, but this differs from Mr. Roper-Curzon's specimen in having a distinct crimson medio-dorsal stripe on the thorax, which is scarcely perceptible in the Scotch specimen; and the Scotch specimen has a distinct yellow costa, which character is scarcely perceptible in Herrich-Schæffer's figure. It has been suggested that the Lapponaria of Boisduval is a variety of Pomonaria of Esper, also figured by Herrich-Schæffer (439); but I think, without sufficient reason: Herrich-Schæffer places both in the genus Amphidasys (p. 100).

Timarcha tenebricosa.—The plump metallic-green larva which A. S. F. enclosed is the larva of a beetle, Timarcha tenebricosa: it will feed freely on a plant called clivers or cleavers (*Galium aparine*), found in every hedge, and remarkable for the tenacity with which it clings to everything it touches; this plant and Rubia peregrina climb by a process very rare among plants, the contact of minute hooks scattered over the surface of the leaves and stalks. The beetle in all its stages confines itself to hedge-weeds; and, although the specimen was found in a garden, you may rely on receiving no material injury from its depredations.

Tipula oleracea.—The offensive-looking grubs, sent by a "Sussex farmer," are the larvæ of the common daddy-long-legs (Tipula oleracea): they are described as eating the young blade of oats just below the surface of the ground. The remedy will be found in doing all you possibly can to encourage partridges, rooks, starlings and sparrows. I know of no artificial remedy so good as this natural one; but lime water and water in which walnut-leaves have been boiled effect the same object when these can be applied, as on small lawns or grass-plots: it is almost impossible to employ these remedies on a large scale.

Shower of Insects at Bath.—Can you, or any of your correspondents, account for the following apparently mysterious occurrence:—On Saturday, April 22nd, during a shower of rain myriads of small glutinous globules, corresponding to the one I forwarded to you, fell on the platform of the Midland Railway Station here: lying on the platform they resembled half-melted hailstones; where it was dry they seemed to disappear altogether, only leaving behind a grease-like spot about the size of a pea. They first appeared between 5 and 6 A.M., and by 11 A.M. worms of about half an inch in length issued *singly* from the globules; but from only a comparatively small number of them. A few of the remaining globules were then gathered up on a piece of paper and kept in water; a sample of these I have forwarded for your inspection (the *small* insects having appeared in the water after two days had elapsed). On Sunday, April 23rd, another downfall occurred, nearly in the same place and under precisely similar circumstances. A local naturalist has accounted for the phenomenon in this way:—He believes the insects to have been the larvæ of the gnat, cast up from the river in a *water-spout* and borne away by the wind; but, as there was nothing of a hurricane at the time, and no one observed anything extraordinary, this would seem improbable. What are they; and how came they to be up in the air? In order to prevent misapprehension it may be as well to state that although I did not actually witness this extraordinary occurrence, I saw the insects in very large quantities, just as they had been gathered together, a few days after; and that the information given above is from numerous and most reliable authorities, some of whom actually witnessed the phenomenon.—*Charles Herbert Bree;* 15, *Great Stanhope Street, Bath, May* 12, 1871.

The mass kindly transmitted to me by Mr. Bree was exactly two-fifths of an inch in its longest diameter and very little less in its shortest: its shape may be described an obtuse-oblong; its surface was uneven, and its substance gelatinous and sufficiently transparent for me to observe that it contained several small vermiform animals. Having taken the mass out of the water, and partially dried it on blotting-paper, I found in the interior eleven vermiform larvæ, each of them rather less than a fifth of an inch in length, and each encased in what appeared a tube of the most delicate character and composed of the finest silk: this was rather to be inferred from its tenacity than from any observation I was able to make, as I could not detect anything like threads: the head of these larvæ had two ocelli or rather dark spots, which appeared to be so, and the next segment or prothorax had two curved or sickle-shaped legs; the last segment was furnished with six small lobe-like appendages, and the penultimate and antepenultimate segments had each a pair of long thread-like legs. I must, however, use the term "legs" with caution, as I have really no knowledge of their function. These little creatures seemed firm, leathery and colourless, with the exception of a medio-dorsal stripe of a decided red colour, which passed from one extremity to the other, and tinged the whole body with pink. I believe these to be of the same genus, and probably species, as those which are often so abundant at the bottom of stagnant ditches and ponds, communicating a red tint to the surface of the mud. Réaumur, in his memoir in vol. iv., has described a larva that I believe to be the same; and it is figured in pl. 4, figs. 11 and 12, and in vol. v. pl. 5 as producing the little gnat now known as Chironomus plumosus; and although I cannot, of course, say, of a minute larva now observed by me for the first time, that it is that of the Chironomus in question, still I feel very confident it is either that or a nearly allied species. The gelatinous mass and its contained tubular cases are connected with, if not produced by, the same insect. I attempt no explanation of the circumstances under which it is said to have been found. Gentlemen to whom I am indebted for newspaper-cuttings and written accounts of this phenomenon will please accept this as the only explanation I am able to give.

Name of Insect.—Can you kindly name the enclosed? They were found at Cairo running very quickly on the sand about a foot at a time, stopping very suddenly and resting pressed closely to the sand, being very difficult to see when in that position, owing to their similarity in colour to the sand. One, as you will see, was brought home dry; the other in carbolic acid; the latter is much swollen.—*H. Jenner-Fust; Hill Court, Berkeley, May* 11, 1871.

The generic name of the insect is Eremiaphila, but I am uncertain of the species: they are figured in the great French work on Egypt, pl. 2, figs. 5, 6 and 6a. A very full description of these strange desert insects is given by Lefebvre in the French annals; and the paper (one of the most interesting entomological memoirs I have ever read) is admirably translated at p. 66 of vol. iv. of the 'Entomological Magazine,' published in July, 1836. I intend transferring a portion of this paper to the 'Entomologist,' whenever space can be afforded.

Otiorhynchus sulcatus and Peach Trees.—The insects, described as so injurious to peach trees in orchard-houses, are weevils of the genus Otiorhynchus and species sulcatus: they feed almost exclusively by night, gnawing off the bark from the tender shoots and, of course, killing them. I have known them to be got rid of by hand-picking with candle and lantern; but I know of no application that will have the same effect.

Eriogaster lanestris.—The downy mass of eggs sent by Mr. Horley, of Hoddesdon, is deposited by the female of the small Eggar moth (Eriogaster lanestris); the eggs are arranged in a somewhat spiral whorl, which passes obliquely round and round the hawthorn twig, and is covered by long, soft, silky hairs or scales from the body of the parent: the male has no such provision. The young larvæ live for a while in company under a tent or web spun by their united exertions, devouring the leaves which they thus enclose; but after a time feed singly and exposed.

Variety of Arctia Mendica.—I obtained last May a moth which, at first sight, I supposed was Arctia Urticæ, but, on closer examination, appeared to be only a variety of

A. Mendica, having only two spots on the fore wing and none on the hind wings. I obtained eggs from it, and they duly hatched: I fed them on chickweed; they lay over the winter in the pupa, and have just emerged, ten or twelve of them; and they are all coloured in the same manner as the parent. The males are a smoky black, but have only the two spots. If this is a variety, is it usual for it to be continued in the offspring?—*W. H. Hamilton; 13, Union Street, Newcastle-on-Tyne, May* 6, 1871.

I can scarcely answer this question; the transmission of varietal colouring to descendants is very imperfectly understood at present.

Butterflies in Carmarthenshire.—As I see in your 'British Butterflies' you are giving a list of localities, you may care to know that in this neighbourhood (two miles from Carmarthen), though only a beginner, I find marble whites and orange tips in great abundance; Edusa, plentiful; high brown fritillary, grayling and brimstone, scarce. A collector for five years has not taken one brimstone; I have seen two and taken one.—*Owen S. Wilson; Cwmffrwd, Carmarthen, May* 7, 1871.

I am obliged for this and many other communications of similar import from different parts of the country, but am quite unable to understand why such information was withheld until the completion of the work had precluded the possibility of making it useful.

Bees deluded by the Colour of Spiders.—I was walking this afternoon beside the Blackwater, a small stream which flows through our valley, when I observed a common hive bee hanging, as I supposed, by the abdomen, from the blossom of a yellow cress, which is abundant there, Barbarea vulgaris. Accordingly, I picked the blossom and examined it more closely, as the position of the bee was peculiar, and I did not think it was dead. As it did not move, I at first thought it must have been detained a prisoner by some viscid fluid peculiar to the plant. I found, however, that in reality it was being tightly held by the falces of a bright yellow spider, so exactly the colour of the yellow blossom of the Barbarea vulgaris that at first (I know something of botany) I mistook the yellow legs of a spider for the multifid stigma of the blossom. Last year I obtained two specimens of a small spider the exact colour of uncooked meat, which, in the same way, had entrapped two hive bees by lurking within the blossoms of Cnicus pratensis, from which it was undistinguishable in colour, and thus the unwary bees had visited their accustomed haunts, little thinking of the deadly enemy which awaited them therein. I presume that all these three instances are cases of "mimicry." I shall gladly send you the flowers, the spiders and the bees, if you think it worth the trouble of seeing them.—*C. W. Penny; Wellington College, Wokingham, May* 15, 1871.

I am greatly obliged by the offer of the insects and flowers, but I have seen so many similar instances that I require no ocular proof of the facts related. There can scarcely be a doubt that the colour of the spider is for the purpose of concealment, but it is not, as is so commonly the case, protective. The tendency of concealment in these cases is rather destructive than protective, at least in the case of the bee.

Works on Coleoptera and Diptera.—Is it your intention to bring out a book on either of these classes? as I am sure it would meet with as enthusiastic a reception as your Lepidoptera has already received.—*S. T. Klein; Haileybury College, Herts, May* 1, 1871.

I have no such intention; and I rather doubt the enthusiastic reception. Diptera are especially unpopular.

Error in British Moths.—Have not you got Plusia chrysitis figured as Festucæ, and *vice versâ?*—*C. E. Holford; High Oak House, near Ware.*

I think you will find this—which is a printer's, not an author's, mistake—corrected in p. 476 of the same work.

Gall on Salix nigricans.—A beautiful gall, of a bright scarlet colour and spherical form, occasionally makes its appearance on the upper side of the leaves of the black willow, always singly, and of that uncertain size generally compared to a pin's head. A specimen has been examined by one of our best-instructed students of this family of vegetable productions, Mr. H. W. Kidd, of Godalming, and it proves to be quite unknown to him. Can any other correspondent give it a name; the description, however imperfect, will distinguish it from all the other galls occurring in England; size of a pin's head; colour, scarlet; habitat, upper side of leaf of Salix nigricans.

EDWARD NEWMAN.

Entomological Notes, Captures, &c.

Xylomiges conspicillaris.—I have had the rare good fortune of breeding three beautiful specimens of Xylomiges conspicillaris this year: the first emerged on the 1st April, another on the 2nd, and the third on the 8th.—*Thomas Goodyear; Church Road, Malvern Links, April* 10, 1871.

Vanessa Antiopa near Sevenoaks.—I have a specimen of Vanessa Antiopa, which I took on Saturday, 22nd April, near Sevenoaks: it is a hybernated specimen and much injured. Mr. Newman has seen it alive.—*Charles Harris;* 32, *Pritchard's Road, Islington.*

Description of the Larva of Cabera exanthemaria.—There is such a meagre description of the larva of this insect in the 'British Moths' that I think I shall not be open to the charge of repetition in giving a more complete one:—Female specimens taken in the middle of June last deposited eggs, which hatched in about ten days: the larvæ fed on sallow, and were full grown at the end of July; when the markings were noticeable it became apparent there were two distinct varieties, which may be described as follows:—*Var.* 1. Length about an inch, of average thickness and uniformly cylindrical throughout. Head a little broader than the second segment, slightly flattened and not notched on the crown. Skin rather puckered; ground colour light green, of different shades in different individuals. Head of the same colour, marked near the crown and on the lower part of the cheeks with deep purple. A narrow green pulsating vessel forms the medio-dorsal line, and dorsally, on each segment, from the fourth to eleventh inclusive, is a conspicuous purple arrowhead mark, the apex of each being close to the posterior part of the segment, the apex of each of these marks incloses a black spot bordered with whitish; subdorsal lines yellowish-white, in some specimens very indistinct or wanting; an interrupted, irregular, dull purplish band forms the spiracular line. Spiracles and the usual dots black. Belly uniformly green, with the segmental divisions yellowish. Legs purple; ventral legs purple on the outside only. *Var.* 2. Brighter green than in var. 1, and the purple dorsal arrow-heads wanting, but having the distinct black dots on the posterior of the segments; the dorsal line is more distinct than in var. 1; the subdorsal lines yellowish, and the spiracular lines formed by a series of interrupted purple marks, most distinct on the anterior segments. Head without the purple marks on the crown, but marked with that colour on the cheeks as in var. 1.—*Geo. T. Porritt; Huddersfield, May* 11, 1871.

Ravages of Haltica fuscicornis at Grately, near Andover.—I lately received from Mr. H. B. Hill, of Grately, near Andover, a box containing several specimens of Haltica fuscicornis, which I have forwarded on to you. Since that Mr. H. has kindly furnished me with the following particulars respecting their destructiveness:—"We have had the same insects here for two years previous to this, but generally a month later. They appear to attack vetches and old ley saintfoin grass chiefly. They are to be met with in this locality all over the roads, crawling about; and after a shower of rain to be seen in thousands floating on the surface of every little pool of water; in fact, some of my work-people have had their little gardens *ruined* by them. They think that the atmosphere is full of them, for, having placed buckets of water outside their houses to try the effect, they find the surface of the water covered with them in the course of a few hours. However, my idea is that they are the same species as the common turnip-fly; and I hope the brutes will soon take flight again." Had Mr. Hill compared these insects with the turnip-fly (H. Nemorum), he would scarcely have mistaken them for the "same species," and would readily have seen the appropriateness of the specific term fuscicornis. —*Henry Reeks.*

Satyrus Tithonus, &c., in Ross-shire.—Mr. Davidson's courteous offer (Entom. v. 265), which I gratefully accept, should have been replied to before, but I have been absent from England during two months. With reference to the other species he mentions, Cymatophora Or has been recorded from Ross-shire by Mr. T. Blackman (E. M. M. v. 102); and by Dr. White, who took the larvæ of this species (E. M. M. v. 284) and of Notodonta Dictæoides (E. A. 1869), and also took Thyatira Batis (E. M. M. v. 284).—*H. Jenner-Fust, jun.; Hill Court, Berkeley, May* 7, 1871.

Solution of Corrosive Sublimate as a Preservative.—About four years ago Mr. Doubleday told me that if the under side of moths were dressed with a solution of spirits of wine and corrosive sublimate he believed that they would be safe from the attacks of mites and mould, and perhaps grease. I dressed all my insects *twice over* with this solution, and did not look at the insects again (having relinquished entomological pursuits for a time) till last March. I then found that several were greasy, that many, especially the Sphingidæ and Bombyces, were much injured by mites, and that one moth (A. Atropos) was mouldy. I think this shows that the application is not an infallible remedy for these pests; though I *do* think that had I not painted my insects with this solution they would have been in a much worse state than they were. The small-bodied insects, such as the Rhopalocera and the Geometræ, were quite uninjured, with the exception of a few antennæ.—*C. E. Holford; High Oak House, near Ware.*

Mites in Cabinets.—I mentioned that I had a cabinet of insects treated after Mr. Doubleday's process (corrosive sublimate and spirits of wine) that were left for six years, and they really were very slightly damaged, considering that they were not camphorised or, indeed, looked at, all that time; still mites *did* attack them. I may mention that during the said six years I had a lot of insects *undressed* and left in drying-cages: these were altogether consumed by mites and some description of Tinea.—*Id.*

Earliness of the Season.—As a further evidence of the earliness of the season, as illustrated by Mr. Raynor in the last number of the 'Entomologist,' I may mention that on the 4th of April I captured in my garden two specimens (male and female) of L. Argiolus; one, fluttering over a yew tree; and the other, resting on its foliage: and in the neighbourhood of Stonehouse I captured, on April the 25th, a specimen of D. unguicula; and, on May the 6th, a specimen of N. Lucina.—[*Rev.*] *Wm. Farren White; The Vicarage, Stonehouse, Gloucestershire, May* 17, 1871.

Chelonia villica feeding on Blackthorn.—Most authors agree in giving the chickweed (*Stellaria media*) or other low-growing herbs as the normal food-plants of this species. I have now some specimens of the larva in a breeding-cage, with chickweed and a branch of blackthorn (for other larvæ); I was much surprised to see Villica forsake its proper food and take to feeding on the sloe. Has any breeder of this species observed this habit before?—*R. Meldola; 21, John Street, Bedford Row, May* 18, 1871.

Questions on the Honey Bee.—1. How long will the honey bee continue to use the same old comb for brood and honey? 2. Which gathers the most and best honey; the common honey bee or the Ligurian? 3. Has the statement of M. Gelien, the Swiss author of 'Le Conservateur des Abeilles,' asserting that four hives, placed in one domicile, eat no more during the winter than a single one, ever been confirmed by the experiments of others? 4. Do bees ever gather honey from poisonous plants in such a way as to deteriorate the quality? 5. Has it yet been ascertained whether bees send out scouts for the purpose of choosing a new retreat prior to swarming? If any of your correspondents, who take an interest in the honey bee, can enlighten me on some of these points, I shall be extremely indebted to them.—*S. T. Klein; Hailsbury College, Herts.*

Stauropus Fagi on the Cotswolds.—Two specimens of this rarity I captured on the 13th of May in a beech and larch plantation on the Cotwolds, about five miles from Gloucester: they were at rest on the trunks of beech trees. A third specimen had been taken in the same place, about a week previously, by Mr. Marsden. This species, as far as I am aware, is new to the Gloucester district.—*Joseph Merrin; Gloucester.*

Acronycta Alni at West Stow.—Yesterday I captured a small, but beautifully coloured, specimen of Acronycta Alni, just out of the chrysalis, asleep on some palings at West Stow. I once took the caterpillar in the same locality on birch. — [*Rev.*] *A. H. Wratislaw; School Hall, Bury St. Edmunds, May* 19, 1871.

The Hornet gnawing the smooth bark of Elm—During the dry hot weather in August and September, 1870, I frequently noticed hornets (*Vespa Crabo*) gnawing the young and *smooth* bark from wood of eight or nine years' growth of a variety of Ulmus campestris or U. montana. So busily were they engaged that they would allow me to draw the branch sufficiently near to minutely watch their operations; but in no instance could I see that they carried on their work systematically, or removed the bark in circles: they only appeared to cut it with their mandibles to suck out the sap. —*Henry Reeks.*

Description of the Larva of Agdistes Bennetii.—In June and July Agdistes Bennetii is very plentiful around our island, flying over the Statice Limonium, which grows abundantly in our salt-marshes. I have often carefully watched the female, but have never been able to detect her in the act of depositing eggs, so that when or how this is done I cannot say. Last autumn I detected small green larvæ feeding on the leaves of the Limonium, which I thought must belong to the above species, but they were so unlike any other Lepidopterous larva that I am acquainted with that I determined to let them alone until the spring, when they would be larger. On the first of May last I walked to their head-quarters, and, after a careful search, succeeded in turning out about two dozen larvæ. They were at rest upon their food-plant, but fell off on the slightest disturbance, and so much resembled the Limonium in colour that it was only by searching for the plants, which showed signs of being eaten, I was able to find them. The larva, when full fed, is about 8 lines long; the head very small: and when the creature is at rest or disturbed it is drawn under the second segment, which is provided with two horn-like projections, and covers the head like a cowl. The third segment is the largest, and from this the body tapers gradually to the anal extremity; the last segment but one being provided with a horn, as in the larva of the Sphingidæ. Colour of the head brownish green, six small black spots, [ocelli] on each cheek, head sparingly covered with pale obtuse setæ, tips of the horns pink; the body bright green, shagreened with light and dark spots; anal segment green, with a ray of six long bristles, which point backwards. When about to change to a pupa the larva crawls to the top of the leaf, and spins across it numerous silken threads, to which it attaches itself by the anal claspers; and in this position remains about two days. The colour gradually becomes brown, the skin assuming a shrivelled appearance.

The final change is gone through very suddenly; a few minutes suffice to throw off the old skin, which remains in a little heap on the leaf, and the pupa then hangs freely suspended by the anal segment (or hooks?). It is very attenuated, and the points of the legs and wing-cases are free from the body.—*Henry Moncreaff; 145, High Street, Portsmouth, May* 19, 1871.

Death of Mr. Laycock.—William Laycock, of Highfield, Sheffield, died on the 8th of this present May, aged fifty-eight years. He was a wonderful example of industry in the pursuit of Entomology; and though a hard-working stonemason, with very little time at his own disposal, he made such excellent use of it that, during the last twenty-five years of his life, he formed a beautiful collection of Lepidoptera, containing 670 species. He was a very patient observer; and his remarkable familiarity with the habits of the various species of moths and butterflies, combined with his own genial nature, made him a particularly interesting companion on an entomological ramble. He was most generous in distributing specimens, and also in imparting to others much useful information, which he had sought out for himself; and I doubt not that he will be much missed by a great number of his entomological friends.—*Samuel Doncaster; Broom Hall Park, Sheffield, May* 20, 1871.

Extracts from the Proceedings of the Entomological Society, May 1, 1871.

Variety of Rhodocera Rhamni.—Mr. Bicknell (on behalf of Mr. Cowan, who was present as a visitor) exhibited an extraordinary specimen of Rhodocera Rhamni, captured by Mr. Cowan at Beckenham, in March, 1870. This example was a male of the ordinary form, but the costal margin of each anterior wing was broadly, but unequally, suffused with brighter rose-colour or scarlet, and the right posterior wing was marked in a like manner. Mr. M'Lachlan suggested that possibly the wings of the insect had come in contact with some substance during hybernation, which had chemically altered the coloration. Mr. Janson said he had noticed that yellow insects killed by cyanide of potassium became red. Mr. Cowan said the individual exhibited had been killed by chloroform, and, moreover, it was in precisely the same condition when captured.

Shower of Insects at Bath.—Mr. Lewis, Mr. M'Lachlan and other Members brought before the notice of the meeting paragraphs that had been going the round of the newspapers concerning a phenomenon observed apparently on two recent occasions at Bath; it appearing that after violent storms the ground was covered with some creatures, variously described as Annelides and insects, which had baffled the knowledge possessed by the "scientific men" of that city. Prof. Westwood thought the creatures were probably Branchypus stagnalis, a large fresh-water entomostracon.

[It will be seen by a reference to a note (see page 313) appended to one of the numerous communications addressed to the 'Entomologist' on this subject, that I have ventured to express an opinion on a matter that "has baffled the knowledge of the scientific men of Bath," an opinion which is also at variance with Prof. Westwood's judgment that these minute worms were "a large freshwater entomostracon."—*Edward Newman.*]

Galls on Pteris aquilina.—Mr. Müller communicated the following note on a gall found on Pteris aquilina:—"In March, 1869, Mr. Rothney placed in my hands a chip-box containing a desiccated excrescence of about the size of a very large pea, and some Cynipideous insects, as well as two specimens of a Callimome. Mr. Rothney informed me at the same time that he had found this excrescence on the common bracken (Pteris aquilina) at Shirley. The excrescence was bleached to a straw-colour, but its condition prevented my being able to form a correct opinion as to the plant from which it was taken; and besides, apart a very doubtful case, I then knew of *no* gall on any fern. On dissecting the gall I found it composed of an accumulation of small larval cells, some of them still containing dead specimens of the maker. The insects being in a very bad condition, I did not think it worth my while to examine them, so I carded them with the excrescence and put them aside. Having lately had occasion to peruse Prof. Schenck's work on the Cynipidæ of Nassau, I found (at p. 127) the following observation:—'No. 69. There is in the collection of Herr von Heyden a gall on the bracken (Pteris aquilina), similar to that of Diastrophus Rubi; a swelling on the upper side of the stem, curved, resembling an episcopal staff, 1—2″ long, full of roundish pierced cells, pale yellowish; a similar straight one in the same collection has also been taken from that fern. A specimen agreeing with the above curved one is in my collection, but I do not well recollect on what plant I have found it. The galls on the fern belong probably to Diastrophus Rubi, with the gall of which they quite agree.' After reading this passage, I at once examined Mr. Rothney's Cynipidæ carefully, and although they are in a very bad condition I have not the slightest doubt that they are Diastrophus Rubi of Hartig and Schenck. It now only remains, to complete this observation, to breed D. Rubi from fresh undoubted fronds of the bracken. Probably the tips of unexpanded fronds are chosen by the insect for the deposition of its eggs; hence the subsequent curved shape of the gall, as described by Prof. Schenck."

[Galls are occasionally to be found on the common bracken before the frond has fully expanded.—*E. N.*]

Scydmænus rufus.—Mr. Champion exhibited Scydmænus rufus, *Mull. & Kunze*, a beetle new to the British list, recently captured by him in Richmond Park.

Proceedings of the Haggerstone Entomological Society.

February 2, 1871.—Mr. E. Barlow, President, in the chair. Mr. Barlow exhibited specimens of Anticlea berberata, Cidaria picata, Larentia didymata and Chesias spartiata. Mr. Healy, specimens of the following Saw-flies:—Selandria stramineipes, Dolerus æneus, Hylotoma enodis, Dolerus cinctus, Selandria pallipes, Tenthredo scutellaris, Nematus Capreæ and Cephus pygmæus. Mr. Elisha, specimens of Crambus paludellus, Chilo phragmitellus, Schœnobius mucronellus and S. gigantellus.

February 9.—Mr. Healy exhibited a box of Tineina pupæ, pupariums, cases and cocoons. Mr. Lorimer, specimens of Psodos trepidaria, Acontia luctuosa, Corycia taminata, Argyrolepia baumanniana, &c.

February 16.—Mr. J. A. Clark exhibited the following Sesidæ:—S. Philanthiformis, S. Chrysidiformis, S. Myopæformis and S. Cynipiformis. Mr. Lorimer, Odontia dentalis, Scotosia dubitata, Agrotis agathina, &c. Mr. Healy, a leaf of Cornus sanguinea (dogwood), having somewhat tooth-shaped galls projecting from the under side of the mid-rib: he observed that he had occasionally met with similar galls situate on the petiole at its junction with the leaf; sometimes no fewer than five of these galls were to be found on a single leaf, all clustered together in a bunch: he added that it was a common occurrence to meet with two or three so situated, each gall being inhabited by some three or four larvæ of a deep orange-yellow colour.

February 23.—Mr. Healy exhibited the following species of Tenthredinidous insects:—Athalia annulata, Hylotoma dorsalis, Selandria luteiventris, Nematus cinctus, Abia sericea, Tenthredo Rapæ and Cladius difformis. Mr. Lorimer, Catocala sponsa, Toxocampa Craccæ, Sterrha sacraria and Lycæna Arion. Mr. Healy, a beech leaf, having a small Lithocolletis mine on its upper surface.

Ninety-seven members attended the meetings this month.

March 3.—Mr. Bartlett exhibited specimens of Tryphæna orbona and Xylocampa lithoriza. Mr. Healy showed a pocket Tenthredo Calendar, which he was compiling. Mr. Raine, dark male examples of Hybernia leucophearia and specimens of Demas Coryli. Mr. Healy, a series of specimens illustrating the economy of Stigmonota Weirana and its mode of pupation. Mr. A. Harper, living specimens of Tæniocampa miniosa. Mr. Pratt, specimens of Nyssia hispidaria. Mr. Healy, the following Micro-Lepidoptera:—Anesychia funerella, Nemotois fasciellus, Gelechia longicornis, Cerostoma scabrella, Chrysoclista schrankella, Laverna decorella and Elachista apicipunctella.

March 9.—Mr. Healy exhibited specimens of Amphysa Walkerana, Ditula Hartmanniana, Sericoris euphorbiana, Euchromia flammeana, Coccyx ustomaculana, C. Vacciniana and Pamplusia monticolana. Mr. Boden, a fine series of bred specimens of Nyssia hispidaria. Mr. Harrison, a box of Macro-Lipidoptera. Mr. Healy, a species of gall growing out of the upper surface of a leaf of Viburnum lantana. Mr. Elisha brought a box of duplicate Lepidoptera for distribution amongst the members.

March 16.—Mr. Mundy exhibited specimens of preserved larvæ, together with a fine variety of Nyssia hispidaria. Mr. Boden, Catocala promissa, Agrotis cinerea, Dasycampa rubiginea and Cosmia pyralina. Mr. Bush, varieties of Nyssia hispidaria, together with bred specimens of Phigalia pilosaria and Cymatophora ridens. Mr. E. Barlow, a living bred specimen of Aleucis pictaria. Mr. A. Harper, examples of Nyssia hispidaria and Tæniocampa miniosa. Mr. W. Harrison, bred specimens of Agrotera nemoralis. Mr. Healy, a box containing specimens of Laverna ochraceella, Stathmopoda pedella, Oinophila V-flava, Asychnia terminella, Glyphipteryx schœnicolella, Gelechia Knaggsella and Coriscium brogniardellum. Mr. J. A. Clark, specimens of Eriogaster lanestris and dark varieties of Hybernia leucophearia.

March 23.—Mr. Raine exhibited a fine series of Nyssia hispidaria. Mr. Bryant, specimens of Plaptypteryx hamula, Cidaria corylata, Ephyra pendularia and Orgyia pudibunda, bred. Mr. Mundy, varieties of Abraxas grossulariata. Mr. Harper, a living specimen of Cymatophora ridens.

March 30.—Mr. Burry exhibited specimens of Brephos Notha. Mr. Bryant, fine specimens of Brephos Parthenias, Sericoris litterana, Macaria notata, Platypteryx lacertula and Pachycnemia hippocastanaria. Mr. Bush, beautiful examples of Brephos Parthenias, together with specimens of Trachea piniperda and Tæniocampa gothica. Mr. J. A. Clark, Notodonta chaonia, Xylocampa lithoriza, Cidaria suffumata and Pachycnemia hippocastanaria. Mr. Elisha, living larvæ of Epunda lichenea. Mr. Gibson, a very dark variety of Chelonia caja. Mr. Healy, two specimens of Parasia neuropterella bred a few years back by Mr. Eedle from teasel heads, thought at the time of collection to contain nothing but the larvæ of Eupœcilia roseana.

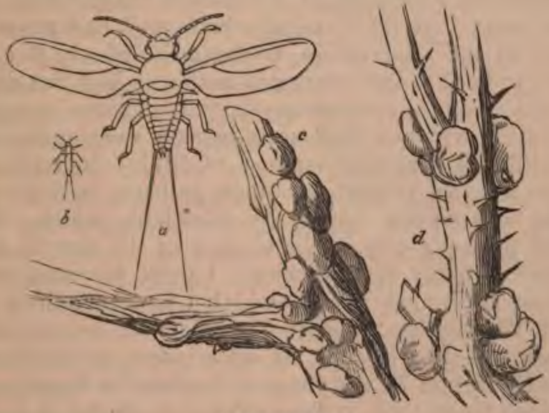
One hundred and twenty-seven members attended the meetings of the Society during this month.

W. GATES, *Secretary.*

THE ENTOMOLOGIST.

No. 92.] JULY, MDCCCLXXI. [Price 6d.

Answers to Correspondents.



SCALE-INSECTS.

a. Male scale-insect of the Cactus (*Coccus Cacti*), the cochineal of commerce, magnified, and with wings extended. *b.* The same, natural size, with the wings closed. *c.* Female scale insect of the vine (*Coccus Vitis*). *d.* Female scale-insect of the rose. All these females are represented of the natural size.

The Scale-insect or Mealy-bug.—Two generations of men have been born, and most of them have passed away, since Rusticus, of Godalming, published his account of the Coccus Vitis, the scale-insect or mealy-bug of the vine; and it was reprinted, at p. 123 of his collected letters, under my own personal superintendence in 1849. Rusticus was by no means the first author who had studied these strange insects: amongst others I may mention the illustrious Reaumur, who had devoted one of his admirable 'Memoirs' to its life-history exactly a century earlier; and our own Haworth has given some interesting particulars of its doings, at p. 307 of the first volume of the 'Entomological Transactions.' That excellent entomological artist, the late Mr. Curtis, more recently gave some information respecting the genus; and Mr. Westwood, at p. 446 of the second volume of his 'Modern Classification,' has a most interesting chapter on Cocci. This summer, dry and cold in an excessive degree, has been remarkable for its productiveness of scale-insects; and I have received a great number of communications and inquiries respecting them. One correspondent, at Canterbury, who sends me a sample of whitethorn loaded with obese females, avers that the "oldest inhabitant" had never seen anything of the kind before, a statement which, if correct, tends to prove that that venerated authority had not directed his attention to economic entomology, but cannot be regarded as sufficient evidence that scale-insects were unknown in Kent until the wretched summer of 1871. In reply to all enquiries on this subject, I cannot, perhaps, do better than cite the description given by Rusticus, which, though intended to apply only to the Coccus of the vine is equally applicable to many other species. I must, however, interpolate some additional details, which I have acquired either from Mr. Westwood's 'Modern Classification' or from my own observation:—The Coccus, or scale-insect, comes from an egg, which is laid in the manner hereinafter described, and my acquaintance with it begins with its babyhood or the dawn of its independent career. I was assisted in my investigations by my late friend Mr. Gratton, one of the most kind-hearted naturalists it has ever been my good fortune to meet with: he possessed an excellent microscope, which was always at my service under his own careful manipulation; and we spent hours together in examining the young of the scale-insect; we agreed on all subjects save one, and on that we agreed to differ. Mr. Gratton regarded animal life created to reveal the powers of his microscope, or, as he expressed it, to "test" the powers of his microscope; I believed his microscope created to reveal the wonders of animal life. We were perpetually delighting in the same discovery; we were perpetually thinking, and often exclaiming simultaneously: "What an excellent microscope;" "What a wonderful object." But I am losing sight of the infant Coccus, in the vivid recollection of the genial man who first introduced us to each other. The young Coccus first treads the stage of active life in the character of a minute hexapod spider: it is of a reddish brown colour, and appears a spider in all things except in the number of legs; a spider ought to possess eight. I do not doubt that in this state it is often denominated the "red spider," and treated with nostrums originally devised for the destruction of that mischievous mite. The young Cocci, which Mr. Gratton and I examined, were obtained from the seeds of the whitethorn; and I am bound to confess that we allowed them to escape without being able to supply a "missing link" in their biography, which should have united their active spider-life to their vegetative existence: we examined them as spiders again and again; we obtained minute scales from the same localities only a few days afterwards; but we never found any direct evidence that the one had been transformed into the other. I feel very confident that the authorities correctly assert that these spider-like creatures anchor themselves in the rind of the twig by means of their sap-sucking rostrum; but I never witnessed the operation. A very few days elapsed between the escape of the insects from the eggs and their reappearance as little scales or shells tightly fixed on the rind of the twig, and, of course, perfectly immovable: the rostrum is, doubtless, the instrument by which this anchorage is effected. This rostrum, or piercing organ, appears to come from the very centre of the stomach, but the appearance is not real: the rostrum is, without doubt, a portion of the head, like the mouth of all other insects; but the fore part of the head, and in consequence the mouth, of the scale-insect, is bent under the breast until the mouth is brought into the situation described: this arrangement can only be observed by lifting up the scale-like creature and laying it on its back. At first all these infant Cocci are alike in size and shape: they look just like a parcel of tiny tortoises fixed to the rind, and sometimes to the leaves. Like most other insects the Cocci are males and females; neither in their spider-life nor in the first few days of their scale-life have I been able to distinguish the sexes; but after these first few days there is an obvious difference in size; the females grow rapidly, but the males do not change: they arrive at their full stature very speedily, and a very small stature it is; each changes to a chrysalis, and forthwith to an imago; it then bursts a hole in its tortoise-like covering and flies away, impatient to obtain its liberty. How different from its former self; different from its arachnoid existence; different from its scale-like state,—it has now a transverse hammer-shaped head, with moniliform antennæ and facetted eyes; two ample wings which, when not in action, lie one over the other flat on its back; and two long bristle-like tails at the extremity of its abdomen protruding, far beyond the tips of its wings. While the males thus undergo a metamorphosis as complete as any recorded by Ovid, the females are "changeless as the eternal rocks;" they are obese and apparently lifeless lumps; they receive the attentions of the males with the most stolid indifference, and I even doubt whether, in the economy of nature, it is a necessity for these apathetic creatures to receive such attentions at all, for there is no such a thing among scale-insects as an infertile female. The female is so closely attached to the rind of the young shoot, the sap of which she is sucking, that it is impossible to remove without killing her: she gradually swells until she attains an immense size, when her whole body becomes a bag of eggs; she begins laying with her body glued down all round to the twig, but between her body and the rind, except just at the edges, is a quantity of gummy cotton spread over the whole space which she covers. The laying of eggs is on a different system to that of other insects: the first egg is laid in the cottony substance, without any disturbance to the margin of the body glued to the rind; it does not adhere like the eggs of many other insects, but lies loose in the cotton; then another egg is laid, which pushes the first a little forwards; and then another, and another, none of them being visible from without; so that all the eggs that a female Coccus lays she incubates or sits on like an old broody hen. As the eggs increase in number they also increase in size, and the mass raises the ventral surface of her body into a manifest concavity, so that the body itself gets thinner and thinner, while the pile of eggs it covers gets thicker and thicker. At last her stock of eggs is exhausted; the lower or ventral skin of her body meets the upper or dorsal skin, and grows hard and fast against it: then the old lady dies, and her body,—that is to say, what little is left of her body,—like the roof of a house, protects the family below from all casualties of wind and weather. In a few days, after the death of the mother, the eggs hatch and become the lively little runners I have already described. They first devour the cottony stuff among which they were born, and then lift up the roof-like covering formed by the dried cuticle of their defunct parent; and each selects his own path in life, never to return. Several species seem to be true natives of this country; others are certainly only denizens.

A new Insect-enemy of Turnips and Rape.—You are perfectly aware that I do not possess any scientific knowledge in Entomology, but, as you have so laudably set apart a portion of the 'Entomologist' for recording facts connected with economic Entomology, I know that you will be pleased to receive any trustworthy testimony on behalf of such. Last evening my brother and I, while walking across a piece of newly-sown rape (*Brassica Napus*), discovered that thousands of minute insects—so minute that my pocket-lens was not sufficiently powerful to reveal the order they belonged to—were puncturing and feeding on the cotyledons, or first leaves; and so quickly did they spring off that I had to return home for some gum and a sheet of white paper, which, when well gummed and hastily turned over the plant, secured about a score specimens, and these I have to-day forwarded to you in a box, the bottom of which had also to be thickly gummed to keep the little skipping fellows in. Though they may turn out to be the commonest of all known insects, these are certainly new to me as being destructive to rape and turnips; for, although I have farmed extensively for twenty years, I never noticed them before; and I think you will agree with me that I do not always "go about with my eyes shut." I know that little pest, the turnip-fly (*Altica Nemorum*), only too well; but these appear equally destructive, and equally nimble. Will you, therefore, kindly tell me their names, and what you know of their economy?—*Henry Reeks; East Woodhay, May* 24, 1871.

These minute insects were so clogged with the gum introduced for the purpose of preventing their escape, that I cannot decide with certainty on their names: I believe, however, that they are a species of Poduridæ, perhaps Smynthurus fuscus. I should much like to see living specimens: they may be sent safely in a glass tube. The fact of such insects being destructive to rape and turnips is quite new to me, and is very interesting.

Shower of Insects at Bath.—Your article in the 'Entomologist' for last month brought to my mind one by the Hon. Mrs. Ward, published in the 'Intellectual Observer' in 1864: it occurs in vol. v. p. 13. Mrs. Ward observes:—"On the 20th August I received from a friend a little box containing a pale jelly-like substance, and a paper containing about thirty black grains, at first sight resembling dry tea. The information my friend sent with them was, 'that they were found on the deck of his yacht, the vessel being moored, as usual, at some distance from land in an inlet of Lough Ree, county Westmeath.' * * * I wrote to ask a few questions concerning the jelly and black grains, and ascertained the following particulars:—'The boatman, whose duty it was to scour the deck each morning, was repeatedly annoyed by finding spots of jelly lying on the deck, &c. He at first thought he had taken it up when wetting the deck with water taken from the lake; but when the weather became so rainy as to make this artificial wetting unnecessary, he still found them.' * * * Having now detailed the antecedents of the jelly, I proceed to the second part of my story. I left the jelly for five days in a tumbler (of water), out of sight, and, I believe, to a certain extent, out of mind also; and the small portion of that with brown particles, which I had last examined with the microscope, remained still in the animalcule cage, slightly flattened between its two disks of glass. On placing the animalcule cage under the microscope, on August 25th, I saw with sudden surprise that several singular-looking larvæ had made their appearance among the jelly. That they had been produced from the brown particles was evident, as many empty shells were visible, and other similar larvæ could be discerned ready to come out of the particles, or eggs as they may in future be called. * * * I at once recognised their forms as familiar to me. A similar insect, with its strange seal-like head and tiny pairs of feet, seal-like also, had often thrust itself across the field of view—a giant among pigmies—while I have been examining minute animalcules with one of the higher powers of the microscope. The larvæ appeared perpetually struggling to free themselves from the jelly, and always incommoded by the slippery glass above and below them, except when they indulged in a lively dance in the surrounding drop of water. Their gait in this movement having reminded me of the common blood-worm (larva of Chironomus plumosus, an insect nearly allied to the gnats), I obtained one of the latter from a water-trough, which abounded in its mud hiding-places, and observed that the new larvæ were very similar to it. This gave me a hint for the more comfortable establishment of the little Westmeath strangers. I placed them in a wine-glass half full of stagnant water: in less than half an hour numbers of the little larvæ had rolled themselves in mud-cases. Meanwhile, the green particles" (previously described by Mrs. Ward as existing in the jelly, which appears to have been of two kinds) "remained unaltered. As may be supposed, they were inspected daily with great curiosity. On the 2nd September the uniform green spots were evidently seen to be exchanged for *something moving:* they proved to be the caddis-worm, larva of the caddis-fly. * * * The jelly, then, was no other than the eggs of insects; and its appearance corresponded with some descriptions given by Westwood (Intoduction to 'Modern Classification of Insects,' vol. ii. pp. 62, 516). He speaks of the eggs of one of the Chironomus family as deposited on the leaves of aquatic plants, and covered with a mass of gluten; and he says of the caddis-flies (Phryganeidæ) that they deposit their eggs in a double gelatinous mass, which is of a green colour. * * * And now," adds Mrs. Ward, "after all, how did the jelly get upon the deck of the 'Dulcinea'? No doubt Chironomus and Phryganea deposited them there; but why so recklessly over sail-coat, coil of rope and deck instead of in the lake close at hand? *That* I do not attempt to explain." Mrs. Ward's description tallies so exactly with the statement in the 'Entomologist,' that there seems no room to doubt that the *jelly* on the deck of the yacht, and the glutinous globules on the railway platform at Bath, are identical. If, as represented, they *fell* on the platform, they must either have been dropped by the parent insect in the air or have been carried thither by the wind. But, *did anyone see* them fall? Was not their supposed fall rather a conclusion, drawn from the circumstance of their lying on the ground, and no producing cause being apparent? I should rather be inclined to suppose that they were deposited by the insects on the platform either just before or during the rain; but *why* they were there deposited I cannot hazard a guess. —*W. Slade; London and County Bank, Buckingham, June* 10, 1871.

Saturnia Carpini.—This year I had a quantity of Carpini pupæ, most of which came out in April, yet I have about a dozen still in cocoon. I have looked at them, and find they are alive. When are they likely to come out?—*W. J. Skelton; The Bounds, near Faversham, Kent, June* 22, 1871.

I have generally found that when Bombyces fail to emerge at the usual time, they emerge at the corresponding period of next year.

Pœcilocampa Populi.—The larva found by Mr. Garrow, feeding on birch, is that of Pœcilocampa Populi.

EDWARD NEWMAN.

Description of the Larva of the Beautiful Hooktip.—It lies in a perfectly straight position, with the ventral surface closely appressed to the object on which it is resting, usually the twig or branch or trunk of a tree, or an old rail, or park palings: one condition of this object is indispensable, —it must be clad with the lichens which constitute the sole food of this species, and which it so closely resembles in colour and appearance that it requires the keenest, as well as the most practised, sight to detect its presence; it does not fall readily, and is quite indifferent to the touch of a finger, but if forcibly removed it falls in a limp and flaccid manner, and makes no attempt to roll in a ring or adopt any other expedient for safety or concealment, perhaps because possessed of the intuitive knowledge that its colour and appearance sufficiently conceal it from the prying eyes of birds and entomologists; in crawling, its action is that of a half-looper, Catocala for instance, the back being alternately raised and depressed with a gently undulating motion. The head is rather narrower than the second, and decidedly narrower than the third, segment; its position when at rest is semi-prone; the face is flat, and the crown scarcely perceptibly notched. The body is of nearly uniform width throughout, but slightly wider, as already noticed, at the third segment; the twelfth segment is slightly elevated dorsally, and the elevated portion bears two small tubercles or warts placed transversely; the dorsal surface is convex and transversely wrinkled; its division into segments is perceptible, but not conspicuous; the ventral surface is flat; the dorsal slightly overlaps the ventral surface, its margin being dilated and fringed with a series of slender fleshy appendages, bearing the same relation to the body, both in position and appearance, as the rootlets of ivy to the climbing twig from which they emanate. The legs are rather long, incurved or sickle-shaped, and the claws sharp-pointed, admirably adapted for clinging to the lichens growing on the perpendicular surface on which the larva constantly resides; the claspers are ten in number; the ventral pairs increase in size as they recede from the head, the first pair being the smallest, the second slightly larger, and the third and fourth still larger, longer and stronger; the anal claspers are slightly spreading, and extend considerably beyond the rounded extremity of the anal flap. The head and body emit a number of scattered hairs, each seated on a minute wart. The colour of the head and body is green-gray, the head being more decidedly gray and the body more decidedly green; the head has two crescentic black marks on the face, and two black spots on the crown; the cusps of the crescents are directed towards the crown; the component parts of the mouth are black, and there is a black transverse line immediately above it; the ocelli on each cheek are black, and surrounded by a slender black ring; the body has numerous black spots and dots irregular in size and shape; the legs are spotted or annulated with black, and the claws entirely black. The life-history of this interesting insect is entirely unknown to me: the full-grown larva I have described, this 2nd day of June, is the only one I ever saw; it was most obligingly presented to me by Mr. Machin, whose knowledge of our British Lepidoptera is almost unsurpassed, and whose contributions to the mass of knowledge collected in the 'Entomologist' are familiar to all its readers. A word remains to be said about the scientific name and the affinities of this interesting insect: it is the Phalæna sinuata of Villars; the Geometra flexularia of Hübner; the Pyralis flexulalis of Haworth's 'Prodromus;'

the Falcaria flexula of the same author's 'Lepidoptera Britannica;' the Ennomos flexula of Stephens; and the Aventia flexula of Duponchel and Herrich-Schæffer. Almost every author has adopted the beginning of the word flexula for its specific name; but, finding it so flexible, has twisted the caudal extremity in every possible direction. The prevailing idea seems to be that the insect is the Phalæna flexula of Fabricius, an idea that cannot possibly be derived from reading that most learned entomologist's description of the larva, which is as follows:—"Larva virescens; collo gibbo, elevato, caudâ acuminatâ; capite pedibusque rufescentibus." The humped back and sharp-pointed tail point to the genus Platypteryx; and the red head and legs are totally inapplicable to the insect under consideration. A generic name is of little importance; but I question the propriety of associating our insect with either of the genera I have named above. If it be compulsory to designate it by a generic name, I would suggest Craspedocampa (fringed caterpillar), as descriptive of its very peculiar larva. The earliest specific name, that of "sinuata," must fall, having been universally applied to another species of Geometra; and if we take the next in order of priority, "flexularia" of Hübner, the name will stand as Craspedocampa flexularia. Its affinities, both as regards larva and imago, are with Metrocampa margaritata, and its place in the system would be next to that familiar species.—*Edward Newman.*

Notes on Phigalia pilosaria.—Three moths, two males and one female, emerged from chrysalids on the 6th and 7th of February: they were kept together in a glass-topped paper-box, in which a piece of dead oak branch had been introduced. On the 15th of February the female was busy the whole day ovipositing: the eggs were of a light drab colour, semitransparent and iridescent, and of a long oval shape; they were deposited on the outside of the bark, as well as deep in the interstices, and under, as well as on, lichen; those on the outside were stuck up on end. About the beginning of March the eggs were a rich brown; afterwards dark purple; and the 9th of April (the day they hatched out) they were of a bright metallic-blue. The young larvæ were of a smoky black colour; the segmental divisions very light and distinct. When the larvæ moved they were rather nice in their choice of food; and out of above two hundred larvæ I at last got about thirty to feed on blackthorn (they refused oak buds). The beginning of May they gave up the blackthorn for oak, and fed up fast: they were then from ⅜ths to ⅝ths of an inch in length, and varied in colour from a pale sienna (or ochre) brown to a dark smoky brown, and mottled (or freckled) all over with a lighter tint, ranging from bright lemon-yellow to a vermilion; the brighter the ground colour the nearer red the mottling, and *vice versâ;* the warty excrescences are now observable, two on each of the fifth, sixth and seventh segments. They rest by day, holding by the four claspers. The head a little elevated; the body arched. About the middle of May they shed their skins the last time: they are now very lethargic, seldom moving unless in search of food, and clinging tightly by the legs and claspers to their food plant. Their colour is now very much like an oak twig: ground colour of a rich sienna-brown, mottled with a light gray, and speckled at the sides with bright yellow or orange spots. At the end of May they began to go down to change, being then from 1⅜ths to 1⅝ths of an inch in length.—*William H. Smith; 5, Cedar Terrace, Sevenoaks.*

Contributions towards the Life-history of Lycæna Argiolus.—I am indebted to the zeal and kindness of Mr. Wellman and Mr. Biggs for the opportunity of describing the egg and the larva of Argiolus, and for information respecting its economy, which I have great pleasure in laying before the readers of the 'Entomologist.' Early in May Mr. Biggs took some specimens of the perfect insect, in Epping Forest, and put them in his collecting-box: he found on his return home that one of these had deposited twelve eggs on the cork of the box; a few days later he cut out the portion of cork to which the eggs were attached, and took it to Mr. Wellman, and it is now before me. The form of the egg is spheroid, depressed at the crown, and flattened at the base, by which it was firmly attached to the cork; the colour was a delicate very faint green, which vanished, the shell becoming colourless, resembling white porcelain when the infant larva emerged, which event took place on the 19th of May: the surface of the shell could then be examined with ease, and was found to be reticulated or pitted, with excessively fine partition-walls between the pits; the interior of the empty egg-shell is lined with a glittering substance like tinfoil. Mr. Wellman supplied the young larvæ, with this year's tender shoots of holly, from his garden, on the soft leaves of which they immediately began to feed, settling themselves on the under side of the leaves. They moulted for the first time on the 2nd of June, and the second time on the 12th, and on the 20th appeared to be full grown and preparing to enter the pupa state, the leaves being still soft and succulent, and exhibiting the operations of the larvæ by small round holes, like shot-holes, on the disk: I observed no instance in which they had eaten the margin. When full fed these larvæ rest on the young leaves of the holly in a flat position, with the ventral surface appressed to the polished surface of the leaf, and the head, legs and claspers entirely concealed: if annoyed it falls to the ground, and lies for a few seconds with both extremities slightly incurved; the head is almost globular, but slightly produced towards the mouth; it is very small, not being more than one-third as wide as the second segment, and entirely retractile within that segment at the pleasure of the larva: the body is of the shape of a Chiton; the divisions of the segments are decidedly marked; the second segment has the anterior margin semicircular and projecting over the head; the posterior margin of the fourth and each following segment slightly projects over the next following segment; there is a slight medio-dorsal depression on all these segments, so that the back appears to have a double series of approximate humps, two on each segment, from the third to the tenth inclusive; the lateral margin of all the segments dilated; the entire dorsal surface is finely shagreened or sprinkled with approximate yellow glandular dots; in this respect the skin having the appearance of the glandular surface of the twigs or leaves of many plants, and being clothed with pale hairs. The head is black and highly glabrous; the body apple-green, with very oblique lines on each side of a darker green; these oblique lines are very indistinct: on the tenth segment is a diffused red spot, also indistinct; the ventral surface and claspers are apple-green; the legs are almost colourless and semi-transparent. It will be observed that only two moults have been noticed. I do not wish to express any opinion whether this is the normal number.—*Edward Newman.*

List of Diptera collected in Egypt and Arabia, by J. K. LORD, Esq.; *with Descriptions of the Species new to Science, by* F. WALKER, Esq., F.L.S.

(Concluded from p. 275.)

MILESINÆ.—Gen. EUMERUS, *Meig.*

56. *E. ruficornis,* Meig. Zweifl. iii. 206. Cairo. Inhabits Europe.

Gen. PARAGUS, *Latr.*

57. *P. bicolor.* Syrphus bicolor, *Fabr. Ent. Syst.* iv. 297. Cairo. Inhabits Europe.

Fam. CONOPIDÆ.—Gen. CONOPS, *Linn.*

58. *C. vittatus,* Fabr. Ent. Syst. iv. 392. Cairo. Inhabits Europe.

59. *C. pusillus,* Meig. Zweifl. iv. 131. Cairo. Wâdy Ferran. Inhabits Europe.

60. *C. auratus. Male.* Tawny, covered with gilded tomentum. Head yellow. Eyes piceous. Proboscis tawny; tip black. Antennæ tawny; club fusiform. Abdomen about twice the length of the thorax; petiole somewhat stout, rather more than half the length of the following part, slightly decreasing in breadth from the base to the tip; the following part or club gradually increasing in thickness from its base to near its tip. Legs tawny. Wings pellucid; veins black, testaceous towards the base. Halteres pale testaceous. Length of the body 6 lines. Hor Tamanib.

Gen. PHYSOCEPHALA, *Schines.*

61. *P. chrysorrhœa,* Meig. Zweifl. iv. 128. Cairo. Mount Sinai. Inhabits Europe.

Fam. TACHINIDÆ.—Gen. MICROPALPUS, *Macq.*

62. *M. vulpinus.* Tachina vulpina, *Fall. Musc.* 23. Cairo. Hor Tajora. Wâdy Ferran. Mount Sinai. Inhabits Europe.

Gen. EURIGASTER, *Macq.*

63. *E. leucomelas. Female.* Black, stout. Head with

gilded tomentum and with many black bristles; fore part and hind part with silvery tomentum, the latter with white hairs; frontalia linear; facialia with bristles by the epistoma, which is slightly prominent. Eyes bare. Palpi tawny. Antennæ red; third joint black, red at the base, reaching the epistoma, about four times the length of the second joint; arista slender, longer than the third joint. Thorax with many long stout bristles on each side, with cinereous tomentum and with four black stripes. Scutellum ferruginous, black at the base. Abdomen tessellated with cinereous, with some stout black spines towards the tip. Wings pellucid; veins black, testaceous at the base; præbrachial vein forming an obtuse angle at its flexure, joining the costal vein at some distance from the tip of the wing; discal transverse vein slightly undulating, parted by less than its length from the border and by much less than its length from the flexure of the præbrachial; alulæ white. Length of the body 5 lines. Hor Tamanib.

64. *E. incisus*. *Male*. Black, stout. Head with silvery white tomentum, which is brightest on the facialia; frontalia deep black, linear, with a row of bristles on each side, and with an elongated black spot on each side where they join the facialia; one long bristle and a few short bristles on each side of the epistoma, which is slightly prominent. Eyes bare. Palpi tawny. Antennæ nearly reaching the epistoma; third joint linear, about four times the length of the second; arista much longer than the third joint, slightly incrassated for about half the length from the base. Thorax with cinereous tomentum, with some short bristles on each side and with four black stripes. Abdomen with many stout bristles on each side and at the tip; three very broad shining cinereous bands, the first and second very narrowly interrupted in the middle; under side cinereous, black towards the tip. Wings cinereous; veins black; præbrachial vein forming a slightly obtuse angle at its flexure, near which it is slightly bent and is thence straight to its tip, which joins the costal vein at some distance from the tip of the wing; discal transverse vein hardly undulating, parted by much less than its length from the border and from the flexure of the præbrachial; alulæ white. Length of the body 4 lines. Hor Tamanib.

Gen. FRONTINA, *Macq.*

65 *F. latifascia*. *Female*. Black, slender. Head with

silvery white tomentum; frontalia cinereous, slightly widening towards the antennæ, with a row of black bristles on each side; one long bristle and a few short bristles on each side of the epistoma, which is hardly prominent. Eyes bare. Palpi testaceous. Antennæ not reaching the epistoma; second joint red at the tip; third linear, hardly more than twice the length of the second; arista very much longer than the third joint, stout for nearly half the length from the base. Thorax and abdomen with cinereous tomentum; a few bristles on each side. Abdomen elliptical; first and second segments towards the hind border and third wholly black and shining. Wings cinereous; veins black; præbrachial emitting a branch and forming a slightly obtuse angle at its flexure, nearly straight from thence to its tip, which joins the costal vein at some distance from the tip of the wing; discal transverse vein undulating, parted by a little less than its length from the border and by much less than its length from the flexure of the præbrachial; alulæ white. Length of the body 3 lines. This species is referred with doubt to the genus Frontina. Wâdy Gennèh.

Gen. MILTOGRAMMA, *Meig.*

66. *M. minuscula. Female.* Black. Head silvery white; frontalia tawny, linear, with a few short bristles on each side; facialia without bristles. Eyes bare. Antennæ setaceous, not near reaching the epistoma; third joint full twice the length of the second; arista stout, a little longer than the third joint. Thorax and abdomen with a few bristles on each side. Thorax cinereous. Abdomen red, with four black bands; third and fourth broad; fourth apical. Legs black. Wings pellucid; veins pale testaceous; præbrachial vein forming a slightly oblique angle at its flexure, near which it is slightly bent, and is thence straight to its tip, which joins the cubital vein at some distance from the tip of the wing; discal transverse vein straight, parted by more than its length from the border, and by less than its length from the flexure of the præbrachial; alulæ white. Length of the body 2½ lines. This species perhaps belongs to a distinct genus. Tajura.

Gen. GONIA, *Meig.*

67. *G. guttata. Female.* Testaceous, stout. Head with three black dots on each side of the fore part, two of them

contiguous to each eye, and the third between the eye and the peristoma; frontalia linear, with black bristles along each side; two black bristles on each side of the facialia near the epistoma, which is prominent. Eyes bare. Proboscis black. Antennæ not reaching the epistoma; third joint darker at the tip, a little more than half the length of the second; arista slender, except at the base, full twice the length of the third joint. Thorax and pectus black. Thorax with bristles on each side; a testaceous spot on each shoulder; scutellum testaceous, with six long and several shorter black bristles. Abdomen with four black dots along each side, with many short and slender black bristles, those at the tip longer and stouter; third segment with a black longitudinal streak. Tarsi piceous towards the tips. Wings cinereous; veins testaceous; præbrachial vein forming a very obtuse angle at its flexure, very slightly curved from thence to its tip, which joins the cubital vein at some distance from the tip of the wing; discal transverse vein slightly undulating, parted by less than its length from the border and from the flexure of the præbrachial; alulæ white. Length of the body 3½ lines. This and the following species differ much from the typical form of Gonia. Tajura.

68. *G. insueta.* *Male.* Cinereous, with no bristles, excepting those along the frontalia. Head silvery white; frontalia tawny, linear, with two or three short slender bristles on each side. Antennæ piceous, not reaching the epistoma; third joint linear, about thrice the length of the second; arista as long as the third joint, incrassated for more than half the length from the base. Thorax with three very indistinct paler stripes. Abdomen testaceous. Legs cinereous, short, stout; knees tawny. Wings pellucid; veins testaceous; præbrachial vein forming an obtuse angle at its flexure, slightly curved from thence to its tip, which joins the cubital vein at some distance from the tip of the wing; discal transverse vein nearly straight, parted by less than its length from the border and from the flexure of the præbrachial; alulæ white. Halteres testaceous. Length of the body 2 lines. Tajura.

Fam. SARCOPHAGIDÆ.—Gen. SARCOPHAGA, *Meig.*

69. *S. carnaria.* Musca carnaria, *Linn. Syst. Nat.* i. 2,

990. Cairo. Wâdy Genneh. Wâdy Ferran. Tôr. Mount Sinai. Inhabits Europe.

70. *S. hæmorrhoidalis*, Meig. Zweifl. v. 28. Wâdy Genneh. Wâdy Ferran. Wâdy Nash. Mount Sinai. Inhabits Europe.

71. *S. lineata*, Meig. Zweifl. v. 26. Cairo. Inhabits Europe.

72. *S. redux?* Walk. List Dipt. iv. 812. Cairo. Inhabits South Africa.

Gen. SARCOPHILA? *Rondani.*

73. *S. guttata*. *Female.* Black, with cinereous tomentum. Head with silvery tomentum; frontalia cinereous, linear, with some short slender bristles on each side; facialia with a few bristles by the epistoma, which is slightly prominent. Eyes bare. Antennæ black, nearly reaching the epistoma; third joint rather broad, about four times the length of the second; arista much longer than the antennæ, pubescent and slightly incrassated for half the length from the base, very slender from thence to the tip. Thorax with some stout black bristles on each side, with two large black spots on each side and with five black stripes; middle stripe very narrow. Abdomen elongate-conical, red at the tip, with some stout bristles and with three black spots on the hind border of each segment. Legs stout, setose. Wings cinereous; veins black, testaceous at the base; præbrachial vein forming a right angle at its flexure, near which it is curved, and is thence straight to its tip, which joins the costal vein far from the tip of the wing; discal transverse vein hardly undulating, parted by a little more than its length from the border and by much less than its length from the flexure of the præbrachial; alulæ white. Length of the body 5½ lines. Tajura. Wâdy Genneh.

Fam. MUSCIDÆ.—Gen. CHRYSOMYIA, *Desv.*

74. *C. Elara*, Walk. List Dipt. B. M. iv. 870. Cairo. Wâdy Ferran. Inhabits South Africa.

Gen. LUCILIA, *Desv.*

75. *L. illustris*. Musca illustris, *Meig. Zweifl.* v. 54. Cairo. Massowah. Tajura. Inhabits Europe.

Gen. CALLIPHORA, *Desv.*

76. *C. erythrocephala.* Musca erythrocephala, *Meig. Zweifl.* v. 62. Cairo. Inhabits Europe.

Gen. MUSCA, *Linn.*

77. *M. corvina,* Fabr. Sp. Ins. ii. 440. Cairo. Mount Sinai. Inhabits Europe.

78. *M. domestica,* Linn. Syst. Nat. i. 2, 990. Cairo. Wâdy Ferran. Inhabits Europe.

Gen. IDIA, *Meig.*

79. *I. xanthogaster,* Wied. Auss. Zweifl. ii. 349. Hor Tamanib. Inhabits Hindostan.

Fam. ANTHOMYIDÆ.—Gen. ANTHOMYIA, *Meig.*

80. *A. muscoides. Male.* Cinereous. Head silvery white above and in front, with black bristles along the frontalia; some stout bristles on each side of the epistoma. Eyes bare. Antennæ black, reaching the epistoma; arista slender, except at the base. Abdomen testaceous; first, second and third segments with a black triangular spot on each; third spot joining the apical black part of the abdomen. Legs black. Wings cinereous; veins black; discal transverse vein slightly curved inward, parted by less than its length from the border and by more than its length from the præbrachial transverse vein; alulæ white. Length of the body 2¾ lines. Cairo.

81. *A. conica,* Wied. Zool. Mag. i. 79. Cairo. Inhabits Europe.

82. *A. meteorica.* Musca meteorica, *Linn. Faun. Suec.* 1849. Cairo. Inhabits Europe.

Fam. ORTALIDÆ.—Gen. DACUS, *Meig.*

83. *D. sexmaculatus. Male.* Reddish, slender, testaceous beneath. Head testaceous, with a black dot on each side of the facialia. Eyes piceous. Palpi long, slender. Antennæ reaching the epistoma. Thorax with a black spot on each side near the scutellum, which is testaceous. Abdomen with a black spot on each side of the second segment. Legs testaceous. Wings pellucid, with a black costal stripe, which is slightly dilated at the tip; veins black, testaceous at the base; discal transverse vein nearly straight, parted by

one-fourth of its length from the border and by much more than twice its length from the præbrachial transverse vein. Length of the body 3 lines. Harkeko.

Gen. ULIDIA, *Meig.*

84. *U. rufifrons.* *Female.* Golden green. Head and antennæ red, the latter not reaching the epistoma. Eyes black. Antennæ piceous; third joint conical. Legs black; hind tarsi testaceous. Wings pellucid; veins pale testaceous. Length of the body 2½ lines. Cairo. Wâdy Ferran.

Gen. HERINA, *Desv.*

85. *H. Urticæ.* Musca Urticæ, *Linn. Faun. Suec.* 1875. Cairo. Inhabits Europe.

86. *H. strigulosa.* *Male.* Black, shining. Head and four anterior legs testaceous. Eyes piceous. Hind legs black. Wings black, with seven white streaks; first streak extending from the base near the costa; second and third extending from the costa to the disk; third much longer than the second; fourth oblique near the tip; fifth, sixth and seventh extending from the hind border to the disk. Length of the body 2 lines. Nearly allied to H. Cerasi. Wâdy Ferran.

Gen. URELLIA, *Desv.*

87. *U. radiata.* Musca radiata, *Fabr. Ent. Syst. Suppl.* 565. Cairo. Wâdy Ferran. Inhabits Europe.

Gen. TERELLIA, *Desv.*

88. *T. Serratulæ.* Musca Serratulæ, *Linn. Syst. Nat.* i. 2, 997. Cairo. Inhabits Europe.

Fam. SEPSIDÆ.—Gen. NEMOPODA, *Desv.*

89. *N. varipes.* *Female.* Æneous-black. Antennæ black. Four anterior legs testaceous. Hind legs piceous; femora towards the base and coxæ testaceous. Wings pellucid; veins black. Length of the body 1¼ line. Cairo.

Fam. OSCINIDÆ.—Gen. OSCINIS, *Latr.*

90. *O. rufescens.* *Female.* Reddish. Head testaceous, with a triangular black spot on the vertex. Antennæ testaceous; arista stout, black. Thorax with two black stripes Abdomen blackish towards the tip. Legs testaceous. Wings slightly cinereous; veins black. Length of the body ¾—1 line. Cairo.

Fam. Psilidæ.—Gen. Piophila, *Fall.*

91. *P. Casei.* Musca Casei, *Linn. Faun. Suec.* 1850. Mount Sinai. The cheese fly. Inhabits most parts of the world.

Fam. Phytomyzidæ.—Gen. Phytomyza, *Fall.*

92. *P. obscurella? Fall. Phyt.* 4, 8. Cairo. Inhabits Europe.

Fam. Hippoboscidæ.—Gen. Hippobosca, *Linn.*

93. *H. camelina*, Leach. Eprob. Ins. 10, pl. 27, f. 11. Hardly distinct from H. equina. Hor Tamanib. Tajura. Wâdy Gharandel. Wâdy Hebran. Mount Sinai.

Francis Walker.

Entomological Notes, Captures, &c.

Nemeobius Lucina near Wetherby.—I took six specimens of Nemeobius Lucina at Bramham Park, near here, yesterday. I used to take it abundantly at Crabbe, near Winchester; but this is, I believe, almost the only locality in Yorkshire. I knew they only came out on Monday, and yet the very first day they were preparing for next year's brood. Last night, May 30, moths were more numerous than I have yet seen them.—*J. S. Wesley; Wetherby, Tadcaster, May* 23, 1871.

Papilio Machaon at Dawsmere.—A fine imago of the Papilio Machaon was captured at Dawsmere, near Long Sutton, one day last week, by a labouring man. I am not aware of it being taken in East Lincolnshire before.—*W. H. Brooks; Long Sutton, Lincolnshire, June* 1, 1871.

The Migration of Aphides.—There is a peculiar form of atmospheric dullness, which, if not confined to the vicinity of our metropolis, is more frequent there than elsewhere, and which is popularly designated a "blight in the air," and is supposed, in some way, to have an injurious effect upon animals, and certainly upon vegetation. Inquire the reason of the latter circumstance, and very likely you will be informed that this blight is caused by the travelling of a host of insects from one spot to another; and some persons are under the impression that they do not journey voluntarily, but are sucked up by the clouds in one spot, and deposited by them in another, without any apparent reason. There is no report, it has been said, so false as not to have in it a grain, at least, of truth; and we know that various species of insects do migrate at certain times, and especially those belonging to the genus Aphis, pre-eminently entitled to the definite article in connexion with the name of "blight." Passing through some of the yet remaining lanes, which intersect the market-gardens at Brompton (Middlesex), on May 15, at 11 A.M. and again at 1 P.M., I observed a number of aphides on the wing, and moving, as far as I could judge, nearly in the same direction. There was scarcely any breeze stirring, but seemingly the insects were coming with the wind, and the sky was dull and cloudy with a bronzy hue, nearly corresponding to what is called by the uneducated a "blight." It would seem, therefore, that such states of weather are selected, in some instances, by insects, when they are journeying in search of fresh quarters; and after or during these, having reached their destination, they may be found busily engaged in attacking the produce of the flower- or kitchen-garden, giving some colour to the popular notion that the atmospheric gloom is caused by approaching or receding insects.—*J. R. S. Clifford.*

[Mr. Walker will, perhaps, kindly offer some explanation of the phenomenon in question.—*Edward Newman.*]

Ravages of the Larva of the Currant Moth.—The larva of this variable and ubiquitous species has been very plentiful this season in gardens west of the metropolis, corroborating the statement that a cold winter is less unfavourable to hybernating larvæ than those wherein there are frequent intervals of mild weather and a considerable rainfall. Awaking from their winter torpidity rather later than usual, they seemed, in my own garden, to devote themselves particularly to the task of stripping the gooseberry bushes, neglecting those of the currant; and not only the leaves disappeared, but also most of the blossoms. The supply of food there being exhausted, after the last ecdysis, the multitude moved off towards a solitary black-currant bush, which stood alone at the edge of the cluster of gooseberry bushes. At a short distance there were a number of red-currant bushes, yet only a straggler or two reached these; for this larva is remarkably sluggish in its habits, and decidedly objects to undertake a journey if food can be got otherwise. So, on this luckless bush, the swarm settled down, for to it, in the poet's words,—

> "they rolled in heaps, and up the tree
> Climbing, sat thicker than the snaky locks
> That curled Megæra."

Left undisturbed, by way of experiment, they swept off leaves, buds, blossoms, and finally devoured the bark and even the wood of the young twigs. It was only when this bush was nearly bare that the larvæ began to file off towards other bushes; and a process of hand-picking, at this crisis, resulted speedily in the destruction of several hundreds. It was noticeable, however, that in some other places, as, for instance, at Clapham, in Surrey, only a few miles off, there were rather fewer than usual of grossulariata about.—*J. R. S. Clifford.*

Description of the Larva of Eupithecia irriguata.—Long, slender, and tapering slightly towards the head; ground colour dull yellowish green; skin rather rough and wrinkled; central dorsal line dull rusty red, very indistinct, except on the capital and caudal segments, enlarged on the centre of the median dorsal segments into a somewhat conspicuous elliptic blotch; subdorsal and spiracular lines yellowish, the latter very faint; head rusty red; belly greenish, without markings. Feeds on oak; full fed middle of June. Much resembles the larva of E. exiguata and consignata, being exactly intermediate between the two. I am indebted to the kindness of Mrs. Hutchinson, of Grantsfield, and Mr. Buckler, of Emsworth, for the opportunity of describing this almost unknown larva. It was bred from the egg by this most indefatigable of fair entomologists; and Mr. B. has, with his usual skill, secured a life-like figure. A few years since my friend Mr. Wratislaw, of Bury St. Edmunds, bred several perfect specimens of this beautiful pug from larvæ beaten from oak, at Hunstanton, in Norfolk.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, June* 19, 1871.

Acronycta Alni at Birmingham.—On the 31st of July, last year, my brother had the good fortune to take the larva of A. Alni. A friend of ours, Mr. W. R. Shrosbree, gave us instructions how to rear it: we nailed a piece of peat on the back of the breeding-box, into which it made up on the 6th of August, 1870, from which it emerged on the 18th of this month, a most beautiful and perfect insect.—*John Landon; 31, Alston Street, Lady Grove, Birmingham, June* 20, 1871.

Macroglossa Bombyliformis and Cucullia Umbratica at Inverurie.—There was a specimen of Macroglossa Bombyliformis and one of Cucullia umbratica, found here last week. So far as I am aware they are both new to the Aberdeenshire list.—*James Garrow; 40, Market Place, Inverurie, N.B., June* 19, 1871.

Extracts from the Proceedings of the Entomological Society, June 5, 1871.

Shower of Insects at Bath.—The Secretary read the following letter (dated May 9th), received from the Rev. L. Jenyns, of Bath, concerning the newspaper reports, alluded to at the last Meeting, as to the supposed showers of insects, or other organisms, occurring at that city:—"Seeing in the 'Athenæum' that mention was made at the last Meeting of the Entomological Society of a 'so-called storm of insects' that had fallen lately at Bath on two occasions, with reference to the inaccuracy of newspaper reports in scientific matters, I venture to send, for the information of the Members of the Society, a statement of so much as I know respecting the phenomenon in question. I did not witness it, indeed I was not in Bath at the time; but a person who keeps a small inn near the Midland Railway-station, where the phenomenon was observed, on my requesting to see them, showed me some of the organisms still alive, which he had kept in a tumbler of water since the time of their falling. This was several days after the occurrence of the storm, and, having already parted with a great many specimens, he would not allow me to take one away with me for closer examination at home. But I saw enough to satisfy me as to their nature, if not to identify the exact species. They were not, as may be supposed, true insects, nor were they Entomostraca, as Prof. Westwood thought they might perhaps have been, but forms of Infusoria, more especially of the genus Vibrio, large numbers of which were present, some swimming freely in the water, but the greater part congregated in spherical masses about the size of a small marble, each mass being surrounded by a semitransparent filmy sort of skin or envelope, through which the minute worms might be readily discerned with a pocket-lens, tangled together and in a nearly quiescent state. I believe them to have been the Vibrio undula of Müller ('Animalcula Infusoria,' p. 46, tab. vi. figs. 4—6, 1785), or some very closely-allied species; and his figure gives an exact representation of the appearance of the congregated masses of worms as presented in this instance, this habit being characteristic of the species. He speaks of the masses being sometimes collected round the branchlets of a conferva (as given in one of his figures). The surrounding skin, which I have alluded to above, I suspect to have been nothing more than a pellicle of scum, &c., deposited from stagnant water, perhaps rendered thick by evaporation. I was told there had been a sudden squall of wind before there came on a heavy rain, and my idea is that these organisms must have been lifted up by the force of the wind, acting in a gyratory manner, from some shallow pool in the neighbourhood, reduced perhaps to a little more than a large puddle, in the centre of which, from the drying up of the water around, the organisms had collected. A boy at the station first noticed them (*i.e.* the above spherical masses) falling on his coat, &c., as the rain came on, and shortly after, as the rain fell more heavily, the platform, so much as was not under shelter,—so I was told,—was covered with them. A few had been observed during a storm some days previous to the fall of which the above is an account."

[Of course, after giving this subject so careful an investigation as I have done, with a different result, I cannot accept Mr. Jenyns' solution, but adhere in all respects to the opinion I have expressed (Entom. 312, No. 91).—*Edward Newman.*]

Rare Hymenoptera at Glanville's Wootton.—Mr. F. Smith exhibited three rare British Hymenopterous insects sent to him by Mr. J. C. Dale, of Glanville's Wootton, in which neighbourhood they had been captured. They were Myrmecomorphus rufescens (a remarkable species of Proctotrupidæ), Ichneumon glaucopterus and Osmia pilicornis.

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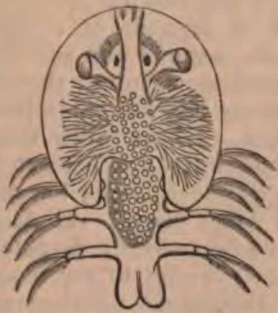
Answers to Correspondents.



ARGULUS FOLIACEUS (MAGNIFIED).

Argulus foliaceus.—The animal J. R. has sent and described is Argulus foliaceus: it is an apterous aquatic insect of the division Entomostraca, which is composed of exosteate animals, which have eyes imbedded in the carapace, and not placed on a peduncle, as in crabs and lobsters. The Argulus attaches itself to fishes by means of two sucking-disks, which adhere so tightly to the fish that it is often difficult to remove them alive. When firmly attached the Argulus sucks the blood of the fish by means of a sharp-pointed rostrum or proboscis: this has been called a siphon, and the animals which possess it Siphonoptera, both rather fanciful appellations. The female carries a large bag of eggs, apparently in the thorax, and the carapace, or cephalothorax, is so transparent, that this ovary and its contents can be seen through it. I have never met with a male. The figure, which I have traced from Baird's 'Cyclopædia of Natural Sciences,' represents a female, with the ovary full of eggs: these eggs are deposited on the leaves of water-plants, particularly those of genus Potomogeton, and the young, on escaping, swim freely in the water, probably feeding on minute animalcules. Be this as it may, it has been ascertained by some of the most indefatigable observers, that they do not acquire sucking-disks and their parasitic economy until after the sixth moult.

Beetle destroying Ten-weeks' Stock.—Can you suggest a remedy under the following circumstances:—My ten-weeks' stock came up regularly and grew very well until three weeks back, when it was coming into blossom; it was then suddenly attacked by myriads of a little jumping beetle, some of which I have secured and send for you to examine. All chance of blossom seems gone; the leaves, as well as the flowers, being eaten by this miserable little wretch, which is no bigger than a flea. I have killed thousands, by shaking the stock over a shallow basin of hot water, in which they die instantly and float on the surface; but more remain behind, and the cry is still "they come."—*E. E. N.*

The beetles were immediately dispatched to Dr. Power, who thus courteously replies to my request for a name:—"The Haltica is Phyllotreta pœcilocerus, of Waterhouse's Catalogue; obscurella, *Ill.*, of Crotch: it is very common everywhere.—*J. A. Power.*" The ten-weeks' stock (Cheiranthus annuus) is a native of the South of Europe, and was introduced as a garden annual one hundred and forty years ago. There is no plant more familiar, and none more universally cultivated. In the South of England it is difficult to find a cottage-garden which is not decorated with the bright flowers of this favourite. The Phyllotreta is a native of this country, like the turnip Haltica, or "turnip-fly," as it is very erroneously called; but it would remain unnoticed, did we not provide it with a more agreeable esculent than it finds in the hedge-rows.

Entomologists in France.—On the wrapper of the July 'Entomologist' I gave the following scraps of news received from France, too late for insertion in due order; they are all extracted from the 'Petites Nouvelles Entomologiques:'—"The second siege, by which Paris has suffered so much, has spared the persons of entomologists, but has utterly annihilated, or greatly damaged, many of their collections and libraries. Dr. Laboulbène, who resided in the rue du Bac, had a part of his house caught by the flames, and a great part of his library destroyed. M. Boulard's collection was shattered to atoms by shells; and many collections have suffered great injury from the partial explosion of the Luxembourg powder-mills: happily a tenth part only of the powder exploded. Had the project of exploding the whole been successful, the collection in the Museum itself must have been destroyed. M. de Marseul's collection is uninjured. Almost all the provincial entomologists in France are in safety, and eagerly pursuing their favourite study,—a solace in their troubles. At Strasbourg the fine collection of M. Gauber is safe, and likewise those of MM. Koechlin and Zuber-Hofer at Dornach; while that of M. Guenée, at Chateaudun, has entirely escaped the destruction of the town by the Prussians, who have taken both the collections and the books of M. Estienne, from the same town."

Collecting in the Holy Land.—M. Peyron speaks of having collected some interesting beetles in an excursion to St. Jean d'Acre and Nazareth: amongst them the most noteworthy were—a Carabus, similar in appearance to Cymindis humeralis, with red body and blue elytra, having a broad sutural stripe of red; it may be a species of Calleida, or something near that genus: a Heteromeron, at least equal to Hylecœtus dermestoides in size, and which seems to be one of the Rhipiphoridæ; it is dull black, with a red prothorax, and it has laminate antennæ, the branches being very long: a Clerus or Dasytes, entirely green, and with a very foreign appearance: a single specimen of Oxysoma Schaumii: two of Agrypnus judaicus: a single specimen of Elytrodon Chevrolatii: one of Adoretus: several of Meloë, Onitis Ezechias, and many minute beetles.

Collecting in the Pyrenees.—M. René Oberthur is now collecting in the Pyrenees, accompanied by Michel Nou, the celebrated entomological guide of Vernet-des-Bains: he has collected many rare insects, and some that he believes new.

Collecting in the Caves of Ariège.—Meunier, the blacksmith, at Ussat, is strongly recommended as a guide to all entomologists who propose exploring the caves of Ariège: he has already accompanied Linders, Von Bruck, Dieck, &c.; and is thoroughly acquainted with all the good localities in the neighbourhood.

Entomological Society of Belgium.—M. Weyers has resigned his Secretaryship of this Society, which has experienced great difficulty in finding a successor to one whose courtesy was so remarkable. He is succeeded by M. de Borre, who may be addressed at No. 1, Place du Musée, Brussels.

Phylloxera coccinea.—This strange insect, which I found so abundant on oak at Leominster, in August, 1869, and concerning which Mr. Walker supplied a most interesting note (Entom. iv. 316), has appeared in numerous different localities in France. MM. Planchon and Litchtenstein continue to study its economy, but hitherto without having discovered anything new. We are still in ignorance of the male.

Migration of Aphides.—In reference to Mr. Clifford's remarks on this subject in the July number (Entom. 346), Mr. Walker has obligingly sent me the following note:—"I believe that the migrations of Aphides are very short, and that the change in the atmosphere, of which the gloom called a blight is the result, is the cause directly, and by its effects on vegetation, of hastening the appearance and of increasing the number of the winged Aphides. When the Aphides have for food a plentiful supply of sap they generally continue in the wingless state, and multiply most rapidly: such is the case with the Aphides of water-plants, of the elder, and of the bean. When the atmosphere checks the supply the winged state begins to abound, and is preceded by the warm dull air that occurs periodically. The winged Aphides of the elder may be observed to be more frequent in the clusters beneath the leaves, than in the clusters on the larger shoots, where the supply of sap is more abundant. In the autumn the atmosphere, also, is the cause of the second especial appearance of the winged Aphides, which fill the air in the calm cloudless days at the end of September and in the beginning of October. It was remarked more than half a century ago, that the autumnal change in the temperature, and its effect on vegetation, is the cause of the appearance of the final state of Aphides; and these insects have been kept four years successively in a green-house, without any appearance of the final state; and I have seen, during a continuous mild winter, the Aphis of the nettle still viviparous, and not oviparous. There are some Aphides, of which all the individuals are winged till late in the autumn, and which do not migrate; of these is the Aphis of the sycamore (A. platanoides), which sometimes occurs in immense swarms on the south coast of England, and is partly kept in bounds by a proportionate number of Syrphi, of whose larvæ it is the chief food. This year is an especial epoch of the plum-tree Aphis (A. Pruni), and its overplus population has colonized the apple-tree and the cherry-tree; an unusual occurrence."

Does Thecla Quercus ever remain in the Pupa state for a Year?—To-day I found a male T. Quercus in one of my larva-cages. I have not taken a single larva of the species this year, and I have not dug for pupa for some months; so how it got there I do not know, unless it has remained in the pupa since last year, as then I had a number of the larvæ. Is this a usual thing?—*W. H. Cole; Croxton, Thetford, Norfolk, July* 9, 1871.

I regret my inability to answer this.

Colias Europome.—If, in any future edition of your 'British Butterflies,' you should care to figure Colias Europome, I shall be very happy to lend you, for that purpose, a fine specimen in my possession, taken with, I believe, three others, by a local collector at Horsham.—[*Rev.*] *Windsor Hambrough; Clarendon House, Worthing.*

I shall be much obliged for the loan of the specimen, whenever it can be sent by a safe hand. I have never known of any authentic British one.

The New Moth-trap.—A short time ago there was some correspondence in the 'Entomologist' about the *American* moth-trap, which does not seem to be considered of any use. I shall be very much obliged if you can give me any information about the *new* moth-trap, without the aid of light. Does it answer? I think that it would be preferable to the American moth-trap, but should like to have the opinion of some one who has used it.—*W. H. Cole; Croxton, Thetford, Norfolk.*

I do not know the new moth-trap.

Triphæna Curtisii.—Mr. Nicholas Cooke, of Liverpool, has bred several T. Curtisii: his larvæ did not assume the pupa until towards spring, but still much earlier than T. Orbona.

Carding Beetles.—In carding large or moderately-sized beetles, how do you manage to keep the antennæ stretched out?—*I. W.*

I have either allowed them to take their course as when pinned and leave them unsupported, or have gummed them to the card-board. I do not think either plan good; and shall be obliged if Dr. Power, or some other competent authority, will advise.

Worms infesting the Larvæ of Liparis chrysorrhœa.—Can you inform me, through your 'Entomologist,' of the name of the inclosed worms, which have been killed in spirits of wine. I have a large brood of L. chrysorrhœa, and a great many of them seem to have been attacked by this parasite, which I find from time to time in my breeding-cage, they having crawled out of some of the caterpillars, which lie near, in a shrivelled state. I shall be much obliged for any information, as I have never met with this insect before, nor can I think to what it is likely to turn.—*Byron Noel; Findon, Worthing, June* 6, 1871.

The worm is a Filaria, but I am unable to state the species. The occurrence of this worm in Lepidoptera is not uncommon; but it is much more frequent in the Coleopterous genus Feronia. I have frequently seen specimens, three and four inches in length, protruding from the extremity of the body in Feronia madida. The Filaria sent is in its adult state, and undergoes no farther metamorphosis.

Larva of a Sawfly.—I have now in my breeding-cage a very strange caterpillar, such as I have never seen before. I took it a fortnight since feeding on whitethorn: it is a pale green colour, frosted all over with white or very pale green; it always rests coiled up at the back of the leaf. What is it?—*Stephen Clogg.*

The larva of Tenthredo Cratægi, the Tenthredo sylvatica, Tenthredo Lucorum, Cimbex Lucorum, Trichiosoma sylvaticum, &c., &c., of various authors. There are hundreds on each hawthorn hedge in my neighbourhood: it will be described under the name of Tenthredo Cratægi in my collected notes on these insects.

Agamogenesis in Sphinx Ligustri.—Whether the following fact concerning the Sphinx Ligustri is new or not I cannot say; it appears so strange to me that I think it worth sending to you. This year I have bred a female S. Ligustri, and not wanting her as a specimen I allowed her to remain in the breeding-cage for some days, during which she laid many eggs on the net covering the cage. I thought, of course, that they would be unfruitful; but, much to my surprise, after a time young caterpillars began to make their appearance; and although the eggs were all laid during one night, they continued to emerge from the 2nd to the 6th of July. I have now nearly fifty of them; they have grown already to nearly three times their size when they were born. Being certain that a male was never near the female that produced the eggs, I am quite at a loss to know how and when the eggs could have been fertilized; in fact I am perfectly puzzled to account for it in any way. If you are in want of any of the larvæ send a box, and you shall have them.—*Stephen Clogg; East Looe, July* 12, 1871.

In the first line of p. 12 of my 'Essay on the Employment of Physiological Characters,' in classification, I have noticed that a similar fact to that mentioned by Mr. Clogg has already been recorded. In addition to Sphinx Ligustri I have enumerated twenty-five well-known Lepidoptera, in which perfect agamogenesis has been observed. I am much obliged for the offer of specimens, but shall be still more so if Mr. Clogg will himself continue to observe them, and report the result.

Egg Parasite.—The inclosed letter will explain the nature of the (to me) remarkable curiosity contained in the quill. Can you tell me the name of the parasite? I shall feel obliged if, in the next number of the 'Entomologist,' you will record this, with any remarks of your own. No such case has ever occurred to me.—"Having just read the 'Insect-Hunter's Companion,' and seeing that at p. 41 you say that you have heard of eggs being stung, I send you an example. I found the inclosed egg on poplar, about June 20th; and to-day, at five minutes to 2 P.M., I happened to look at it, and observed a very small hole in it. This I hoped would prove to be the caterpillar; but, to my disgust, in about three minutes a small insect emerged, and a few minutes after another; one or two are in the quill with the egg, I believe. If you could kindly tell me what sort of egg it *was* when laid, I shall be much obliged. Last year I found a good many kitten (furcula) and poplar hawk (Populi) eggs on this same tree."—The name of my young correspondent is H. A. Bull.—*J. Greene; Apsley Road, July* 10, 1871.

As these insect-atoms were very lively and active, it is probable that many escaped before they reached my hands, when they were only nineteen in number; and these, having been examined by Mr. Walker, are pronounced to be hymenopterous egg-parasites, the Trichogramma evanescens of Westwood. The egg in which they had passed their larval existence was that of Smerinthus Populi.

EDWARD NEWMAN.

Life-history of Acidalia prataria.—The parent moth was taken by Mr. J. P. Barrett, at Folkestone, during the third week in July, 1870; and the eggs were laid in a pocket collecting-box a day or two afterwards. The young larvæ emerged early in August; they were exceedingly long and slender, and were very active until the end of October; they were then placed in a large box with a quantity of withered Polygonum aviculare (common knot-grass), to which they attached themselves; some of them remained motionless until the end of March, others crawled about for a short time among the Polygonum: in neither instance could Mr. Barrett discover that they ate anything during the winter. Early in April they began to feed again, and continued eating until the middle of June, when they were full fed. Mr. Barrett remarked that at the time of hybernation they varied greatly in the number of black spots, hereinafter to be described. The full-fed larva rests in a perfectly straight position, the head being porrected on the same plane as the body, but falls from its food-plant if annoyed, and lies wriggling and twisting on the ground in a most remarkable manner. The head is of nearly equal width with the second segment; the face is flat, truncate at the mouth, and at each extremity of the truncature is a conspicuous papilliform antenna, with a somewhat bulbous base; the body is long and slender, of nearly uniform breadth throughout, but slightly and very regularly increasing in breadth from (and including) the head to the anal extremity; the sides are dilated by the presence of a manifest skinfold, which extends its entire length; the back is transversely wrinkled or divided into numerous sections; the number must, however, be taken as subject to future investigation, as I have only counted the sections in four segments and in two specimens; the legs are crowded together, and when the larva is annoyed it bends the head downwards until the mouth and legs come in contact, the flattened character of the face entirely disappears, the anterior extremity appears truncate, and the legs are concealed by their close approximation to the body; the ventral claspers are only two, and there is no trace of the other pairs; the anal claspers are rather slender and spreading; the ventral surface is wrinkled like the dorsal, but the sections are narrower, thus allowing free play to the movements of the body in crawling; scattered bristle-like hairs occur on the head and on various parts of the body: the colour is pale putty-colour, the lateral skinfold rather lighter, and the ventral surface rather darker, inclining in one specimen to smoky; in each dorsal interspace, beginning with the sixth and ending with the tenth, are two closely approximate and nearly square black spots; in advance of these and rather nearer the head there is another black spot on each side of each segment; and again on each segment, still in advance of these markings, is a transverse series of four other linear indistinct black markings. These larvæ were full fed on the 18th of June, when they left the food, and descending just below the surface of some light earth provided for them, they spun a very slight web, composed of a few silken threads attached to particles of earth, and in this changed to pupæ on the 25th; the colour of the pupæ was bright light-brown, and the surface exceedingly glabrous; the head rounded; the wing-cases ample, extending two-thirds of the entire length; the anal segment produced into a nipple, and furnished at its extremity with two spines directed backwards; these are parallel at first, but each is bent outwards at its extremity. I am indebted to the kindness of Mr. Barrett for a supply of these interesting larvæ, and for particulars of their early life-history. With me they fed exclusively on Clematis vitalba (traveller's joy). This is the Geometra strigillata of the 'Vienna Catalogue,' but not of Hübner, whose insect still retains that name. It is erroneously stated in 'British Moths,' that the food-plant of this species is Stachys sylvatica (hedge wound-wort), an error copied from Freyer, and a humiliating instance of the folly of copying without acknowledgment.—*Edward Newman.*

Description of the Larva of Acidalia remutata.—Eggs were obtained from a specimen of this insect, I captured on June 15th, 1870: these were red in colour, and hatched on the 27th of the same month. By August 9th the larvæ had attained to an inch in length, when I described them as follows:—Body rather rough to the touch, slender, uniformly cylindrical, and of nearly uniform thickness throughout; head the same width as the second segment, and notched on the crown; the face flat; skin finely ribbed transversely, both dorsally and ventrally; segmental divisions not very conspicuous; ground colour dark olive-brown, approaching to dull black ventrally; head light brown, variegated with darker, and with a black V-shaped mark, the apex of which is pointed upwards, on the upper part of the face; the medio-dorsal stripe is composed of a very narrow, interrupted and indistinct grayish line; there are no perceptible subdorsal lines, but along the spiracles are several grayish white marks, which are most conspicuous on the posterior segments; on the eleventh segment, at each side, between the medio-dorsal and spiracular line, is a black spot; usual dots minute, black; a slaty gray stripe extends along the centre of the belly, gradually shading off into the blackish ground colour. My larvæ fed on Polygonum aviculare, and, when at rest, the food-plant was grasped by the claspers, and the body stretched out at full length, with the head raised a considerable height; when disturbed they fell to the ground at full length rigidly stiff, not attempting to roll into a ring.—*Geo. T. Porritt; Huddersfield, July* 12, 1871.

Entomological Notes, Captures, &c.

Entomology in Ireland.—Having recently returned from a five-weeks' journey through the West, North-west and South-west of Ireland, a little account of what I did, and what I thought of Entomology in that country, might not, perhaps, be uninteresting to some of your readers. In the first place, I must say *I did not* work very hard at insects, my attention being divided between insect-hunting, fishing, scenery and gaining health, and the weather all the time being very unfavourable, nothing but dry north-east or north-west winds prevailing from the 4th of May, on my arrival in Dublin, till the 6th of June, the day I left Kingston for Holyhead on my return, and with very little rain,—I only required to use my umbrella twice the whole time,—which, they tell me, is something unusual for Ireland, which is considered the Niobe of nations. *Insects*—as a rule, in Ireland—appeared to me to be very scarce, except, perhaps, the Diptera; but I was much struck with the great numbers of M. Cardamines flying all along, on sunny days, the banks of the railways and the roads throughout the whole of Ireland which I visited; it was certainly the most abundant butterfly; next, R. Rhamni, hybernated specimens; then the small tortoise-shell (V. Urticæ) and peacock (V. Io) frequently put in an appearance; and two species of the common Pontias and P. Alexis and T. Rubi were abundant near Killarney: and this completes the list of butterflies which came in my way. In marshy places, near the Middle and also the Upper Lake, E. Bankiana was very common, flying over the heath with a common species of Crambus, but, strange to say, I did not fall in with Uncana; but I was very pleased to meet with parties who saw *alive* several specimens of Notodonta bicolora, or Micholora as they call it, there taken by the late Peter Bouchard; and I was pointed out a birch tree, where he found a specimen at rest on the trunk. I was too early myself for this insect; but I spent a day in the plantations, where they were taken, and found it very hard work, not being at the time very well. I dont see any reason why this insect should not occur again there, if any good collector could spend a few weeks on the spot, and is not afraid of hard work and getting wet feet in the swampy boggy places where it occurs. *Coleoptera* were generally very scarce and, what I met with, nearly all very common. I annex a list of the species found, kindly determined by Dr. Power, with their localities; those from Ballina occurred mostly in Sir Arthur Gore's park, about a mile from the town; they were principally taken on the 20th May. From this place I went on to Killaloe on the Shannon, and about six miles from there—on the banks of Lough Derg, on the left side, in a marshy place, on the 29th May—I found six specimens of Chlænius holosericeus running in the sunshine; this is the only really rare species I met with in Ireland: it has not, I believe, been taken for about thirty-five years, when a few specimens were then found in the fens of Cambridge, by Dr. Power and others. From this place I proceeded to Killarney, where I collected a few hours only, and principally on the margins of the Middle and Upper Lake; but Phosphaga subrotundata was crawling on the dusty road. After staying three days at Killarney I proceeded to Rosbeigh, about sixteen miles: this place is near the sea-shore, and looked promising; but it was very disappointing, as will be seen by the list. Although Ireland is rich in some plants, I did not meet with the great variety that are to be found in the South of England and on our coast, which accounts for the limited number of species of insects. I have no doubt, however, any good collector visiting the places, and really working hard, would turn up many other species, and probably a few rarities amongst them.

About six miles from Killaloe, all from Lough Derg:—

Chlænius holosericeus, 6
Blethisa multipunctata, 2
Carabus arvensis, common
Chlænius nigricornis, common
Pterostichus nigrita, 2
Anchomenus lævis, common
„ marginatus, do.
„ mœstus, 2
„ versutus, 1
„ viduus, 1
„ albipes, common
Bembidium assimile, 1
„ bipunctatum
Donacia impressa, 4
„ thalassina, 1
Gryphidius Equiseti, 4
Alophus Vau
Notaris acridulus
Strophosomus Coryli
Sitones tibialis, 3
Rhinonchus subfasciatus, 2
Ceutorhynchus troglodytes
Gymnetron Beccabungæ, *var.* of Veronicæ
Bagous lutulentus, 3
Parnus prolifericornis, common
Telephorus rufus
Psylliodes Napi
„ exoletus
Galeruca lineola
Lema cyanella
Cercus flavilabris, 3
Georyssus pygmæus, 2
Laccobius minutus
Stenus plantaris, 4.

Killarney, nearly all on the borders of the Lakes:—

Leistrophorus murinus
Stenus Juno
Phosphuga subrotundata, 5
Corymbites tesselatus, 3
„ Quercus, 3
Aphodius prodromus
Anisodactylus binotatus
Pœcilus cupreus
Blethisa multipunctata, 4
Anchomenus viduus
„ lævis, common
Elaphrus cupreus, do.
Chlænius nigricornis, do.
Harpalus fulvipes
Stenolophus lateralis
Bembidium Doris, 2
Telephorus lituratus, 2
Donacia linearis
„ aquatica
Phyllopertha horticola
Cyabus fuliginosus
Cassida vibex, 3
Phædon Betulæ
Prasocuris marginellus
Otiorhynchus picipes
Notaris acridulus
Mecinus pyraster
Sphærula Lythri
Rhinonchus pericarpius
Pachyrhinus caniculatus
Psophagus Sysimbrii.

Rosbeigh-on-the-Sea:—

Pterostichus nigrita
Anisodactylus binotatus
Calathus mollis, 1
Anchomenus marginatus, 5, common
Notiophilus semistriatus, 2
Elaphrus riparius, common
Amara fulva
„ trivialis, black var.
Saprinus æneus, 2
Hister neglectus
Onthophagus nuchicornis, common
Philonthus politus
Xantholinus ochraceus
Coccinella varians
Philopodon gemminatus, very common on sand-hills
Mecinus pyrgaster
Otiorynchus sulcatus
Erirhinus Nereis
Cæliodes didymus
Ceuthorhynchus troglodytes
„ Roboris
„ sulcicollis
Sitones regentsteinensis
„ tibialis, 2
„ sulcicollis
Anisotoma calcarata
Lathridius lardarius.

Ballina:—

Agriotes obscurus
Hypolithus arvensis, 3
Corymbites quercus
Telephorus flavilabris
Coccinella 16-guttata
Cyphon pallida
Cassida obsoleta, 4
Cassida equestris
Prasocuris marginellus
Phædon tumidula, 2
Galeruca lineola, common
„ tenella
Phædon Raphani
Psylliodes exoleta, 2, common

Crepidodera pusilla
Apthona cærulea (Pseudacori), common on Iris
Apthona lutescens, 2, common
Cercus flavilabris, 4
Aphodius scybalarius
Donacia sericea, 5
Leiophlæus nubilus
Gryphidius Equiseti, common
Sciaphilus muricatus, 3
Barynotus Schönherri
Baridius T-album
Mecinus pyrgaster, 2
Hydronomus Alismatis
Cæliodes didymus
Ceutorhynchideus terminatus, 3
Ceuthorhynchus assimilis
Sitones griseus
„ tibialis, common
Phyllobius unicolor, 2
Polydrosus pterygomalis
Apion Ervi
„ violaceum, 2
„ humile, 2
Bembidium 2-punctatus, 3
Amara vulgaris
„ trivialis, 2
Calathus mollis
Anchomenus lævis, common
„ micans
Pogonus chalceus, *var.*
Philonthus politus
„ varians
„ ebeninus
Stenus plantaris, 4
„ declaratus
Omalina rivulara
Tachyporus ruficollis
„ obtusus, *var.* according to Sharp.

—*Samuel Stevens; 28, King Street, Covent Garden, July* 9, 1871.

Four days in Sherwood Forest.—I spent four days, from June 12th to 16th, in company with Mr. Porritt, of Huddersfield, in Sherwood Forest. We made Edwinstowe our headquarters, and, except when we were stopped by the rain, we spent the day-time in searching the trees and beating for larvæ, and the evening in sugaring. At the latter, however, we did scarcely anything. The weather was cold, and there seemed to be no Noctuæ about: all the four nights I do not think more than a dozen moths came to sugar, and, with the exception of one N. Saponariæ and one C. Porcellus, they were quite common things, such as A. exclamationis and G. trilinea. Larvæ hunting was more successful, as the following list will show. The great find, however, was a fine male S. Fagi, which was found, sitting on an oak tree, the first day, only just out: it is now in my possession. We were a little too early for imagos; T. punctulata was tolerably plentiful, but we did very badly for the season; everything seems to be late this year. The weather has been wet and cold; and I never remember a spring and early summer with so little sunshine. The following is our list, which Mr. Porritt has kindly made out:—

T. Quercus
C. Porcellus
H. Velleda
E. Jacobeæ
L. Auriflua
O. Pudibunda
O. Antiqua
H. Pennaria
P. Pilosaria
N. Hispidaria
A. Betularia
T. Biundularia
T. Punctulata
I. Lactearia
E. Punctaria
E. Pendularia
P. Petraria
A. Strigillaria
H. Defoliaria
C. Boreata
E. Decolorata
E. Pulchellata
E. Castigata
E. Vulgata
E. Exiguata
T. Obeliscata
(variata)
M. Ocellata
C. Unidentaria
C. Corylata
E. Palumbaria
S. Fagi
C. Flavicornis
N. Saponariæ
T. Cruda
T. Miniosa
A. Aprilina
H. Thalassina
H. Contigua
A. Myrtilli
A. Pyramidea
E. Mi
H. Barbalis
H. Prasinana
&c., &c.

—[*Rev.*] *T. W. Daltrey.*

Saw-fly Captures.—During the past two seasons I have added the following species of saw-flies to my little collection:—

Tenthredo semicincta. Beaten out of Spanish chestnut. Shirley, Surrey.

T. scutellaris and T. microcephala. Taken by sweeping maple. Croydon.

T. cingulata. Captured whilst flying over whitethorn. Croydon.

T. Rapæ. By sweeping heather. Shirley, Surrey.

Macrophya neglecta. Flying about whitethorn. Addington, Surrey.

Selandria fuliginosa. Captured amongst mixed herbage. Addington, Surrey.

S. pallipes. At Addington, Surrey.

S. stramineipes. Plentiful amongst the common brake ferns in Epping Forest.

Crœsus septentrionalis. Amongst birch and alder.

Athalia annulata. Amongst whitethorn.

A. scapularis. Swept off heather on the Addington hills, Surrey.

Allantus viridis. Beaten out of hornbeam. Highgate Wood.

A. Colon. Amongst hornbeam. Bishop's Wood, Hampstead.

A. Fagi and scalaris. Bishop's Wood, Hampstead.

Cephus pygmæus. Two specimens: one at Addington, Surrey, amongst grass; the other taken off a wall in Cannon Street, London.

Hylotoma enodis. By sweeping in a field near Epping Forest.

H. ustulata. Captured in Scotland this season, by Mr. Eedle.

Nematus cinctus. By sweeping plants in a field near Epping Forest.

N. Capreæ. Taken by Mr. Eedle in Scotland.

Sciapteryx costalis. Scotland. By Mr. Eedle.

Dolerus æneus. By sweeping Centaurea nigra in a field near Epping Forest.

D. cinctus. Scotland. By Mr. Eedle.

Abia sericea. Captured in Scotland by Mr. Eedle.

Euura Gallæ (*Newman*). This species is a gall-feeder, and affects Vaccinium vitis-idæa (the cowberry), growing in Perthshire. In the month of June, 1869, Mr. Eedle sent me tenanted galls, from which I bred the perfect insects the following May. The species have been named by Mr. Newman.—*Charles Healy; 74, Napier Street, Hoxton, N.*

Acidalia circellata and Anticlea sinuata near Canterbury.—I took a good specimen of A. circellata in Blean Wood, at eleven o'clock at night, on Wednesday, 28th of June. I do not know if it has been taken anywhere else this year. I have also taken several sinuata in the same locality. I believe this is the first that has been found here.—*George Parry; Church Street, St. Paul's, Canterbury.*

Ypsipetes ruberata in Scotland.—I have bred twenty-two fine insects from pupæ found under moss and bark of willow (Salix alba), at Eaglesham, nine miles from Glasgow.—*James W. Peebles; 13, Brown Street, Glasgow.*

Dianthecia irregularis and Acidalia rubricata.—D. irregularis has turned out a complete failure: I have only one, and Rev. J. Mills only one, turned out of over one hundred caterpillars. A caterpillar of A. rubricata has just died full fed.—*A. H. Wratislaw; School Hall, Bury St. Edmunds, July* 4, 1871.

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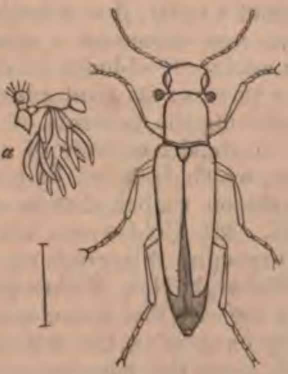
Answers to Correspondents.



LYMEXYLON NAVALE (MAGNIFIED).

Fig. *a* represents the palpus, and the line beneath this shows the exact length of the beetle.

Ship-timber Beetle (*Lymexylon navale*).—The information required by Mr. H. Bayne is rather of a multifarious character, but I shall have much pleasure in giving as much as I am able. The destroyers, or perforators, are of three very distinct and dissimilar kinds:—*first*, Lymexylon navale, a coleopteron, or beetle, in the larva state; *second*, Limnoria terebrans, a crustacean of the legion Edriophthalma; and *third*, Teredo navalis, a mollusk of the family Pholadidæ. Lymexylon navale, represented in the figure, appears to have been a most excruciating animal to our systematists; together with another beetle, of similar economy, it constituted the tribe Xytotrogi of Latreille, and the family Lymexylontidæ of Stephens. Lymexylon navale having done great injury to timber in the dockyards of Sweden, the king directed Linneus to investigate the subject and report: he did so, and his account of its economy is the first we have. Ratzebourg has, however, given us a much more complete life-history in his 'Forst-Insecten Kafer,' in which work he has figured the insect in all its stages. It has sometimes been most abundant in the dockyards of France, perforating the oak-timber and reducing it to powder. It has been found that in all stages this pest can be destroyed by immersing the timber in water. In the oak forests of Northern Europe it abounds; but in England it is go great a rarity, that a single specimen, taken in Windsor Forest, was esteemed a great treasure. The second insect is a marine wood-louse of very small size, but of great destructive powers: its food consists exclusively of timber, for, on examining the contents of its stomach, these have been found to consist entirely of comminuted wood. Unlike Lymexylon, which is killed by immersion in water, Limnoria only feeds on timber that is either partially or entirely submerged. Mr. Coldstream has collected a vast number of facts respecting this creature, and has published them in the 'Edinburgh New Philosophical Journal' for 1834. From this it appears that it commences its ravages on a piece of wood by excavating the soft parts, leaving those harder parts which mark the boundaries of annual growth, and subsequently attacks these, the portion consumed being under water, or, at any rate, below high-water mark. During the building of the Bell-Rock lighthouse it was necessary to erect a temporary wooden building, in which the engineer and his assistants resided, and which was supported by twelve large beams of Memel fir, fixed in bolt-holes cut in the rock; the sides of these beams were charred and pitched, but the bottoms, which closely fitted to the holes, were left naked. In the second year the edges of these timbers were in a state of decay, owing to the borings of the Limnoria. The logs of Norwegian pine, laid down to support the temporary tramroads, were greatly injured; the timbers at first ten inches square, in four years were reduced to seven inches, thus losing at the rate of nearly an inch a year. In some instances the house timbers were so completely eaten away at the bottom that they stood clear of the rock, supported only by the bolts and stanchions. The piles supporting the timber-bridge at Montrose were so destroyed by the boring of the Limnoria that the whole structure was in danger of falling; and, in like manner, the piles supporting the Trinity chain-pier, at Leith, were—in 1825, four years only after its erection—so perforated as to be useless, and were removed at a great expense, and replaced by new ones: the girth of the original timbers was forty-eight inches, which, before removal, was reduced to six inches. Various plans for remedying the mischief were tried, but none succeeded so well as covering the whole surface of the timber, from the bottom of the sea to within a foot or two of mean high-water mark, with broad-headed iron nails, technically called scupper nails, set close together. A piece of wood, covered on three of its sides with these nails, was found to have the whole interior eaten away, such portion of the exterior only being left as had been penetrated by the nails. This plan was adopted, at an expense of about £1000, in the Leith pier, which had cost £30,000; and, after four years, it was ascertained that none of the piles thus protected had been penetrated by the Limnoria. Timber used for partially-submerged structures is now generally kyanized, and this process greatly retards, if it does not totally prevent, the injury occasioned by this insect. The *third*, and most formidable timber-borer, is the Teredo, the character of which truly curious animal seems to have been as familiar to the ancients as to ourselves. Ovid compares this insidious enemy to the corroding effects of care on man,—

> "Estur ut occulta vitiata teredine navis;"

the simile is as good as the description of the Teredo is perfect. The interest in this mollusk has been kept up to the present hour, and it has been made the subject of three most elaborate and learned treatises in one year, 1833: they were by Pierre Massuet, Jean Rousset and Godfrey Sellius, the last of whom wrote a quarto volume of three hundred and sixty pages, and cites the labours of two hundred previous authors. Three years previously to the publication of this elaborate work, the Teredo threatened to submerge Holland, and hence the intense interest taken in its history. Holland seems to have been considered, at that period, a country standing on piles; and it is not astonishing that when the piles were found to be giving way a panic should have set in. It is rather remarkable that the three greatest historians of Teredo have been politicians, and not naturalists; and, although describing with accuracy and minuteness its structure and habits, had regarded it from a political rather than a zoological point of view. It may also be observed, that it is possible, indeed almost probable, that the little marine wood-borer already mentioned may have caused much of the damage attributed to the Teredo, for it was the piles that suffered most, and especially at or about the level of high-water mark. It has been supposed that Teredo, formerly abundant on English coasts, had become extinct; but this is evidently a mistake, for it seems certain that the destruction of the bridge at Teignmouth was effected solely by its operations. Teredo is a long worm-shaped and worm-coloured animal, with two very manifest shells attached to one extremity. Five species are recorded as British, and have received the names of navalis, malleolus, nana, norvagica and palmulata; but these, supposing them to be distinct species, are indifferently alluded to under the Linnean name of navalis. The mode in which Teredo perforates wood has been fully, and I may say exuberantly, but not conclusively, discussed. Some assert that it can bore through copper, and even iron; and I was once subpœnaed as a witness to prove this capability; but, not being cognizant of the existence of this power, I declined to express an opinion, and, therefore, was not called.

Argynnis Valezina at Canterbury.—I have taken several of this beautiful variety near Canterbury, and have seen several others during the past week; also some fine Adippe; both of which I have not taken here before.—*G. Parry; Church Street, St. Paul's, Canterbury.*

To me this is an interesting and unexpected discovery. I acknowledge I had heard of Valezina having been *seen* in Kent, but not *taken;* and I know we are so subject to errors of the imagination, that I have often taken leave to deduct one-half from the value of occurrences not verified by capture, on the principle that "a bird in the hand is worth two in the bush."

To set Hymenoptera.—I shall be much obliged if you will inform me, in the 'Entomologist,' how Hymenoptera are set; whether pinned or carded; and whether the wings are extended or allowed to remain along the back.—*S. T. C.; High Ham, Longport, Somerset, July* 20, 1871.

My own invariable practice is to pin Hymenoptera, and to set them with the wings expanded; but I do not collect those minute parasites of which Mr. Walker has described so many species; these are invariably gummed on cards. Mr. Walker brings them home alive in a phial, which has a piece of blotting-paper, or some similar material, in it, to absorb the moisture. Arrived at home the contents of the phial are shaken over a basin of hot water, which instantly kills them, and they float on the surface.

Small Specimens of Vanessa Urticæ.—I write to inform you that I have bred specimens of V. Urticæ from caterpillars, which I obtained in Wales, measuring only $1\frac{7}{16}$ths and $1\frac{5}{16}$ths inches respectively, from tip to tip of front wings. I bred some twelve specimens, varying from $1\frac{5}{16}$ths to $1\frac{3}{4}$ths, none exceeding the latter. I write to ask you if it is not unusually small, as I find, on referring, that the usual dimensions are 2 inches and over.—*Geo. W. Oldfield; Shrewsbury, July* 14, 1871.

The size is much below the average: a very small race exists in the Isle of Man, but not so small as these. Some entomologists have considered this a species; others have attributed the discrepancy to humidity of climate, insular situation, dryness of season, unusual heat, prevalence of cold east winds, &c.; but this small Manx race of Urticæ appears to be constant, which would not be the ease were the size dependent on these conditions of atmosphere.

Chermes Abietis, gall of the Spruce fir.—I inclose a piece of fir, in which there seems to be a large amount of some sort of scale-insect; hundreds of the males have come out, but there are still a few, I think, in the box; the females seem to be under the hard lump. Could you let me know what they are? I noticed a great many on one tree.—*E. A. Hall; Southgate Hill, Winchester.*

The insects which form these curious and beautiful galls are Chermes Abietis of Linneus. Kaltenbach thinks there are two species, which he calls Chermes coccineus and C. viridis; but entomologists are not agreed on this. I propose to return to this interesting subject shortly, and to figure these galls.

Grapta C-Album bred in July.—During the second and third weeks of last month several larvæ of Grapta C-Album were found in our garden, feeding on gooseberry and red-currant. They were nearly full fed, and soon suspended themselves to the top of the breeding-cage, all being in chrysalis by the 20th. The first emerged from the chrysalis on the 27th; and at the present time only one remains to come out. Is not this very early for the appearance of this species in the perfect insect, or may we now consider it to be double-brooded?—*C. J. Watkins; King's Mills, Painswick, Gloucestershire, July* 18, 1871.

This is an interesting question, and requires careful consideration. I trust Mr. Watkins will keep a series of this brood, and inform the readers of the 'Entomologist' whether they resemble the pale or the dark variety.

Minute Moth.—Having taken a minute moth, much smaller than anything in Westwood's 'British Moths,' I think it well to send it you on the chance of its being rare. —*W. Seth Smith; Langley, near Guildford, July* 15, 1871.

I believe the little moth is Lithocolletis prunetella: it is certainly that or a closely-allied species.

Cocoon of a Curculio.—I shall be much obliged if you will inform me, through the medium of the 'Entomologist,' what this curious little thing is. It is, I fancy, the pupa-case of some Coleopterous insect.—*Wm. Douglas Robinson; Kirkennan, Dalbeattie, N.B., July* 17, 1871.

I have sent this curious little object to Dr. Power, who kindly returns the following note:—"The pupæ are dead, so I did not open the cocoons. I cannot tell what they are for certain. I think some Hypera (Phytonomus). If from the coast, *probably* H. fascicularis, judging from the shape of snout (tucked in) and structure of rudimentary elytra. The antennæ are under thin 'skin,' and, no doubt, would be modified when released, and look different; but as they now lie they look like those of Thaumaturgus, but I don't think it is. I *know* that Phytonomus does make such cocoons. They should be bred out before determining.—*John A. Power;* 52, *Burton Crescent, July* 22, 1871."

Name of a Larva.—Would you kindly inform me, through the 'Entomologist,' if you can from my description, what the under-mentioned larva is:—It is similar to one of the Vanessæ in general appearance; head very small and black; first four segments not much larger than the head, then increasing in size and tapering off again; the general colour is pale green, with a pale yellow line above the spiracles, which are black; in each segment there is the appearance of a black ring under the skin, so that if it changed skin again it would be black-ringed. I found it domiciled between two leaves of nettle.—*A. C. Hervey; Colmer Rectory, Alton, July* 23, 1871.

I think it is Pyrameis Atalanta.

Mould on Insects.—Can you kindly tell me what to do in the following fix? *viz.*:—I have a case of moths, many of which have become covered with a *white mould*, more particularly the antennæ and edges of the wings; I can remove this by brushing, or benzine will take it away for a short time, but it returns again, bad or worse than ever. Can you give me any idea of the cause, and if there is any remedy? The case is kept in a room where there is a fire daily, so that I do not think it proceeds from damp: many of the insects are valuable, and I am quite at a loss what to do.—*W. H. Pearson; Ivy Hall, Solihull, July* 25, 1871.

The insect in the condition described should be touched with a camel's-hair pencil dipped in a weak solution of corrosive sublimate in alcohol; after one or two applications the mould will certainly disappear, and is not likely to return.

Rearing Zeuzera from the Egg.—The other day I found a number of the leopard moth's eggs, which I wish to rear. I looked in your moth book, and found that the leopard caterpillars fed on solid wood. I should feel much obliged to you if you would tell me the most practicable method by which I could rear the caterpillars, for I have not got in my collection a single good specimen of the leopard moth.—*Cecil Brooks; 6, Kent Terrace, Regent's Park, July* 29, 1871.

I believe the attempt to rear Zeuzera Æsculi from the egg is almost sure to fail. The only mode I can suggest is to confine the moth, by means of a loose muslin covering, to the stem or branch of an apple-tree, and thus compel her to deposit her eggs on the bark: these will hatch in process of time, gnaw little holes in the bark, and feed for a year, at least, on the solid wood, as I have so fully described (Entom. ii. 92), remaining entirely out of sight until the final change to a moth takes place. It will be difficult, if not impossible, to exercise that care over the larvæ of Zeuzera which we do over the leaf-eating larvæ.

Parasite of the Tortoise.—Nothing is more common than to find a tick, about as large as a dog-tick, on a tortoise in a garden; sometimes as many as a dozen on a single tortoise. They attach themselves to the loose but very tough skin at the base of the legs of the tortoise. The scientific name is Ixodes Gervaisii. The name of Ixodes Testudinis has been given for this tick; but it is nowhere described by that specific name.

Parasitic Acarus on Crane-flies.—The minute mites attached to the crane-fly, which A. D. has sent, are the Ocypete rubra of Leach, described by that eminent entomologist in the eleventh volume of the 'Transactions of the Linnean Society.' Dr. Leach observes that "this little animal, which is not larger than a grain of sand, is parasitic, and is frequently to be found on the largest tipuladous insects adhering to their legs. No less than sixteen specimens have been obtained from one insect." He describes it as having "six legs; colour red; back with a few long hairs; the legs with many short hairs of a rufous ash-colour; eyes black-brown." I have frequently observed mites, which I presume to be of the same genus, clinging to the bodies of butterflies, Melanagria Galathea and Epinephele Janira more particularly. I shall be obliged for any further observations on this subject.

Bombyx processionea in Dorsetshire.—In 'Science Gossip' for August 1st I find the following paragraph:—"I beg to inform you that these caterpillars (Bombyx processionea) have made periodical visits to my garden for the last dozen or fourteen years. The first year they appeared we caused our servant to catch them; and, being all of us ignorant of their urticating nature, the boy suffered as your correspondent describes. Since that time we have destroyed many, but have taken care never to touch them. I have heard of clothes, dried near the trees on which the caterpillars were, becoming poisonous. The processionaries are very numerous, although I have never had the luck to see a procession. With us they devour oak, elm, hornbeam, and even laurel.—*Julia Colson; Swanage, Dorset.*" There are many things in this difficult to understand: not being a clothes-moth, I do not eat clothes, and, therefore, do not care for their becoming poisonous; but, in common with several brother entomologists in this town, I am desirous of knowing your opinion as to the possibility of Bombyx processionea occurring in Dorsetshire. —*Entomologistes.*

It is quite possible that Bombyx processionea should occur in Dorsetshire; but it is highly improbable that it should have paid periodical visits for twelve or fourteen years, and yet never before have come under notice: I, therefore, incline to think some other species is intended; probably Pygæra bucephala, Bombyx neustria, or Liparis chrysorrhœa. Mr. Dale, of Glanville's Wootton, one of the best entomologists living, must, I think, have been acquainted with so interesting and unexpected a fact as this singular caterpillar occurring periodically in his own country.

Galls on the Elm.—This morning I found the accompanying galls upon some elm-trees in our neighbourhood. Thinking they would interest you, I send them for your acceptance.—*Thomas Brown*; 13, *King's Parade, Cambridge, August* 8, 1871.

I am much obliged; they shall be named and described in the next number of the 'Entomologist.'

Food of Carpocapsa pomonana.—Is it common for C. pomonana to feed on other things beside apples and pears? I have bred a beautiful male specimen from a walnut, which was brought to me last September: it spun up in the nut, and changed to pupa last June. I took great care of it, keeping it in a little box by itself, in hopes it was something new: it is a very fine specimen, measuring 1 inch. —*W. West*; 6, *Green Lane, Greenwich, August* 10, 1871.

Migration of Aphides.—Allow me to thank Mr. Walker for his interesting note on the above subject (Entom. 354); and I think he has conclusively proved that the supposition I find current with some gardeners is erroneous, namely, that these insects travel in clouds for a considerable distance, as, for instance, from the country lying to the east of London into the western districts, so passing across the heart of the metropolis. We, in these suburbs, are apt to abuse the east as the source of much vapour and other atmospheric products, which take their rise in the extensive Thames marshes, and are floated to us by the easterly winds; but we may cease to blame Kent and Essex for the Aphides which plague us in Middlesex and Surrey. The Aphis of the plane seems to attack the lime also, many of these trees about London presenting quite a wintry aspect; but it is singular that some of those which have been visited by the greatest number of these pests, so as to lose nearly all their leaves, have put forth a fresh supply, and appear again in spring attire; while others, which have suffered less, retain their brown appearance.—*J. R. S. Clifford.*

Lacordaire's Coleoptera.—I learn from that agreeable source of entomological information, the 'Petite Nouvelles Entomologeques,' that M. Chapuis has undertaken to complete M. Lacordaire's great work, which was interrupted by the lamented death of its talented author. M. Chapuis wishes to obtain specimens of the following genera, in which he is still deficient:—Megamerus, Prionesthis, Rhynchostomis, Atalesis, Ametalla, Chiloxena, Polyoptilus, Macrolema, Eubaptus and Ateledera, &c. I am informed that our friend, Mr. J. S. Baly, who possesses the finest collection of Chrysomelidæ in the world, has offered it for M. Chapuis to make every use of; and I trust other entomologists will follow so generous an example.

M. Wencker.—M. Wencker has been confined to his bed by severe illness for ten months, during which time the bombardment of Mezières has taken place. His health is now improving, and he has resumed his entomological correspondence: he has fixed his residence at Viterne, and is about to explore, entomologically, the province of Lorraine. His collection is uninjured.

M. de la Brulerie.—M. de la Brulerie is about starting on an entomological tour in Spain.

M. René Oberthur.—M. René Oberthur has returned from his visit to the Pyrenees in company with Michel Nou, to whom we are indebted for so many and such interesting discoveries. After having rapidly explored the vicinity of Perpignon, the flats at Canet, and the pools of St. Nazaire, where he made a fine collection of Coleoptera, M. Oberthur returned to the Albères, and has brought from these mountains some very curious Coleoptera, among which is a Staphylinus he thinks may prove to be the Kraatzia attophila of Saulcy. I may also mention among his captures Anillus hypogæus, Microtyphlus Schaumii, Leptomastax Delarouzei, Catopsimorphus Fairmarii, Raymondia Delarouzei, and a species allied to this last, but much larger, and probably new to Science; and, in addition, he has brought home a considerable number of Pselaphidæ and Scydmænidæ, which have not yet been determined. On the Massane he met with Bythinus Massanæ of Saulcy, discovered a few years back by Michel Nou. A cave in the neighbourhood of Banyuls, never previously explored, and in which it was expected some of the blind Coleoptera would be found, produced nothing but Pristonychus cyanescens, and a pretty Catops which had taken up its quarters at some distance from the mouth of the cave. It is remarkable that in a country so rich in blind Coleoptera, this cave did not afford a habitation even to an Adelops. After searching the environs of Port-Vendres, Collioure and Banyuls, where he found a number of Aptinus displosor, nearly always accompanied by Percus patruelis, he proceeded to Vernet, where he made some most interesting captures, amongst which may be mentioned Belodera Genei, Vesperus Xatarti, Rhagonycha signata, Chlœnius fulgidicollis, and a great number of other species not yet determined. He next explored the environs of Mont-Louis, and especially the valley of Eyna, so rich in Coleoptera. Thence he returned to the Ariège, but only explored the cave at Ussat, which contained scarcely anything worth notice, excepting Adelops Pyrenæus and Pholeuon Querilhaci, which were very abundant. He ended his tour by exploring the mountains of Luchon, and ascended the peak of Nethou. The mountains of the Haute-Garonne produced a number of interesting Coleoptera, among which may be mentioned Athous filicornis, Nebria laticollis, and Adelops ovatus, shaken out of moss. When all the insects procured shall have been determined, it is proposed to prepare a list of them for publication in the 'Entomologist.'

M. de Narcillac.—M. de Narcillac communicates the results of an entomological excursion he has made to l'Etang-Neuf, the forest of Rambouillet, near Montfort-l'Amaury. This locality proved much richer than he had expected: he collected between seven and eight hundred Coleoptera, the greater part of which are still unnamed. Among the ascertained species are Cicindela sylvatica, found in sandy tracks bordered with heath, and the bark of Pinus sylvestris, stacked in heaps after the felling of the timber; Pogonocherus ovalis, on the sallows, after they began to lose their catkins in May; Lebia hœmorrhoidalis, on the catkins of the sallows, a single specimen on those of the birch, and another on fern; Chorœbus Rubi, and other Buprestidæ, on the catkins of the birch; Lamia tristis, Helops sulphureus, Bembidium paludosum, and a great number of Curculionidæ, Hydrophilidæ, and of the genera Agabus and Cryptocephalus.

M. l'Abbé Fettig.—M. l'Abbé Fettig, an entomologist, who, during the early part of the occupation of Alsace by the Prussians, had been imprisoned at Strasbourg, has been released. His collections have received no injury.

Phlœdes obcordata.—In a collection of insects, made in the east of Siberia, Mr. Pascoe has detected a specimen of the genus Phlœdes, closely allied to, if not identical with, the P. obcordata of Kirby (Nosoderma obcordata), a species hitherto supposed to be confined to the United States. This extension of the geographical range of the genus is very interesting.

New Books.—The 14th fasciculus of Mulsant's 'Opuscula Entomologica' is just published. The 3rd volume of the 'Natural History of the Hemiptera of France' will be ready in a few days, and will contain four tribes. M. Mulsant has published the new edition of his 'History of the Lamellicorns of France,' as well as the 1st part of the 'Staphylinidæ.' A new edition of the 'Iconography and Natural History of Larvæ of Lepidoptera,' by MM. Duponchel and Guenée, is about to be issued: the work gives descriptions and figures of a great number of the larvæ of European Lepidoptera, of course including English species; these figures are contained in ninety-three plates, excellently coloured: the work is published in forty fasciculi, at 1 franc each. Of the Iconography and Description of unpublished Lepidoptera of Europe, by P. Millière, twenty-five fasciculi have been published, and these contain more than a thousand descriptions of larvæ, pupæ and perfect insects, with the plants on which the larvæ feed, and other details of their life-history: the work is worthy the support of all lovers of the Science; nothing can exceed the delicacy and finish of the figures: we regret, however, to observe, a sad confusion of names in the instance of Cidaria russata and immanata;

none of our continental friends seem able or willing to recognize the distinction between these species.

Entomologist to the Royal Agriculturist Society.—This appointment is proposed: I sincerely hope that on the occasion those who have it in charge will waive all those qualifications of poverty, number of children, relationship, clanship, interest, &c., which govern the appointment of beadles or curators of museums, but select the man whose knowledge of the Science will do most honour to his appointment, and render the greatest service to the Society, and through the Society to the agricultural interest.

EDWARD NEWMAN.

Life-history of Lithostege griseata.—This moth seems to be local as regards England, having only been noticed near Brandon in Suffolk, and near Thetford in Norfolk. It flies during June, and has been observed during every week in that month laying its eggs on Erysimum cheiranthoides (worm-seed treacle-mustard). For a first knowledge of its economy we are indebted to that excellent observer Mr. Brown, of Cambridge, previously to whose discovery the larva was unknown. The young larva is hatched about the end of June, and may be found feeding during the whole of July, and entering the earth in order to undergo pupation at the end of that month. Its chief and favourite food consists of the seed-pods and seeds of the Erysimum, but it will also occasionally eat the leaves and flowers, as well as feed on Sisymbrium Sophia (pin-leaved hedge-mustard or flix-weed, unless, indeed, this name has been given by mistake), Sisymbrium officinale (common hedge-mustard), and Capsella Bursa-Pastoris (common shepherd's purse): these two last-named I have found acceptable to its taste in confinement, although I am not aware that it has ever been found eating them when at liberty. The mode in which it operates on the long pod of the Erysimum is curious: it begins nibbling the pod just below the dumpy undivided stigma (which, in the numerous specimens before me, is invariably left untouched), and eats its way down one valve of the pod, consuming every seed in its downward progress, leaving the median septum, as well as the opposite valve of the pod entire; arrived at the foot-stalk it crawls to the top of another pod, which it serves in a precisely similar manner; thus every pod is robbed of half its seeds, and the other half is left to arrive at maturity as best it may. When full grown the larva rests in a straight position, with the head porrected on the same plane as the body; when annoyed it falls, in a seemingly inanimate condition, bending the head rather downwards, but makes no attempt to assume the ring form; the head is very slightly wider than the 2nd segment, and has no perceptible notch on the crown: the body is of uniform substance throughout; it is rather convex on the back, dilated on the sides into a manifest skinfold, and flattened on the belly; the anal flap is obtuse, the anal claspers spreading nearly at right angles with the flap, and rather exceeding it in length. The colour of the head is gray-green, irrorated with dark purple (almost black) dots: in some of my larvæ these are associated in four groups, two on each cheek; in others they form but one group on each cheek; and in some instances they are scattered, apparently without arrangement, over the head; the ocelli, five in number, are black, and are situated near the bulbous base of the antennal papillæ, the papilla itself being transparent and colourless: the prevailing tint of the body is pale smoky bottle-green: there is a compound medio-dorsal stripe, consisting of seven divisions; the outer of each on each side is much lighter than the others, the tint of which is alternately lighter and darker, but none are very distinct; the skinfold is white, or nearly so, and is dilated into a whitish patch on each side of each segment; in the centre of this patch is the brown spiracle: the dark and light tints alternate transversely, as well as longitudinally, so that the body seems indistinctly annulated with bottle-green and pale gray-green; the ventral claspers are pale smoke-colour, just perceptibly tinged with green; the anal claspers are of the same colour, with three indistinct darker lines extended to the feet: the belly is almost white, with two indistinct darker stripes extending from the legs to the claspers; between the legs and between the claspers the belly is green. My specimens were full fed, and went under-ground, on the 23rd of July; examined on the 28th I found they had buried themselves to the depth of two inches, as far as the vessel in which they were confined would allow, and had become shorter and stouter, the colour having changed and assumed a regularly annulated appearance. On the 1st of August I turned out and examined the earth, being anxious to describe the pupa. I found they had undergone their transformation; each had formed a neat little cell in the earth, but without any admixture, so far as I could perceive, of silk; the head-case of the pupa forms a small and slightly-projecting knob; the case of the prothorax, or perhaps tippets, is also knob-like on the back; the wing-cases are of medium length, and the wing-rays are rather strongly marked; the surface is rather deeply and confluently punctured, giving the pupa a dull appearance, which I mention in contradistinction to the glabrous exterior so commonly observable in pupæ; and there is a deep medio-dorsal puncture on the 5th, 6th, 7th and 8th segments, and each of these deep punctures is surrounded by a glabrous space; the abdomen terminates in two very acute and moderately long divaricating spines. The contour of the wing-cases is dull greenish and semi-transparent, and that of other parts dull pale brown. This moth is the Phalæna griseata of the Vienna Catalogue, as first pointed out by Mr. Doubleday; and also of Hübner, Treitschke, Duponchel, Boisduval, Herrich-Schæffer, Guenée, &c. The late Mr. Stephens gave it the name of Minoa niveata, in a footnote, at p. 147 of his 'Systematic Catalogue,' evidently supposing it to be the Phalæna nivearia of Scopoli and Fabricius; and English entomologists have generally preferred adopting this transference of names. The late Mr. Curtis, also, gave it a new specific name, Clarkiata, as a well-merited compliment to a Miss Clark, a very accomplished entomologist, who, I believe, captured the first recorded British specimen, and whose family Mr. Curtis frequently visited at the time. Miss Clark subsequently became Mrs. Cole; and to the obliging kindness of her son, Mr. W. H. Cole, I am indebted for a supply of the larvæ, and much information respecting the economy of this interesting insect. I ought also to mention that the Phalæna farinata of Borkhausen, a name applied to the species, is identical with Nivearia of the Vienna Catalogue, and is totally distinct from our British insect. In my 'British Moths' I have restored the prior name of Griseata. Herrich-Schæffer places it in the genus Chesias; but it may be remarked that the genera of Geometræ have been purely fanciful up to the date of Guenée's great work, and entirely independent of that affinity, which such associations were originally intended to indicate. — *Edward Newman.*

Life-history of Aleucis pictaria.—The moth, which so long eluded the grasp of our most ardent, most practised, and most skilful collectors, makes its appearance in the winged state during that fearful time which poets denominate "balmy" and "gentle," which they apostrophise as "ethereal mildness," and which they tell us "comes veiled in a shower of shadowing roses," while "sportive zephyrs play"; but which our prosaic ancestors curtly designated "blackthorn winter," and which we ourselves dread as the season when east winds hold their revels, sowing catarrh, bronchitis, consumption and all manner of dire diseases broadcast over the land. It is then that the sloe puts forth its bloom, assuming a whiteness undistinguishable, in the blinding drifting atmosphere of snow, from the flakes which are perpetually alighting on the blackened twigs for an instant and then hurrying forward on their horizontal career. It is then that Pictaria, having passed the winter in the pupa state on the surface of the earth, emerges from its self-selected grave, and, mounting upwards, crawls along the twigs with dainty steps, miraculously maintaining its foot-hold and balancing itself with its scarcely stiffened wings; it is then that it performs its hymeneal rites and procreative duties: incongruous choice! strange antithesis to the howling elements around! It is then that our collectors, undeterred by the surroundings, sally forth with candle and lanthorn, like Diogenes of old, seeking Pictaria with numbed fingers and purple noses. The eggs are laid on the blackthorn and abandoned to Nature, careful and sagacious Nurse, while the parents are hastened to destruction and battered to pieces by the fury of the blast. Of the infant larva we know but little, but when a fortnight old it may be beaten into the collecting-net or the umbrella from the dwarf blackthorns either at Dartford Heath or at Loughton, or in the New Forest, and a fortnight later we find it full grown and resting in a bent position on the twigs of the blackthorn, which it so closely resembles that I deem it next to impossible to distinguish one from the other when the larva is motionless: the head is slightly narrower than the 2nd segment, its position prone, its face flattened, its crown rounded and scarcely at all notched; the body is rather stout, of nearly uniform substance, but having the 3rd and 4th segments slightly swollen; the back is transversely, but not strongly, wrinkled or folded, and has several small warts, more especially on the 12th and 13th segments, each of which emits a small bristle-like hair; along each side of the body is a very imperfect and intercepted skinfold: the prevailing colour, both of the head and body, is dingy smoke-colour: the head has an ocellus-like mark on each cheek near the crown, and the body has a large amorphous whitish patch on each side of the 8th and 9th segments; in some specimens these patches almost meet on the back; on the dorsal surface of the middle segments there is a trace of the V-shaped mark so frequently occurring in Geometers, and a dark transverse line on the 12th; moreover, on each side of the 4th and 5th segments is an indistinct and vague oblique line, darker than the general ground colour; the belly is rather more variegated than the back, but altogether it is a most dingy-looking animal, and, like the perfect insect, it has no claim whatever to the title of "pictaria," unless on the principle said to be implied in the word "lucus," *a non lucendo*: "pictaria" *quia non picta*. From my knowledge of Mr. Curtis's character I entirely acquit him of this feeble attempt at wit; his was far too grave and solid a character to have descended to the light and frivolous. Towards the end of July the larva descends towards the earth, and changes to a pupa near the surface, without spinning any perceptible cocoon: it remains in the pupa state throughout the winter, and until the bitter blasts of another April have scorched the young leaves of the blackthorn in the futile attempt to unfold themselves. I am indebted to Mr. Machin for the opportunity of describing this larva.—*Edward Newman.*

Description of the Larva of Nemoria viridata.—When at rest its position is perfectly straight, except at the two extremities, both of which bend slightly backwards: the head is of nearly the same width as the 2nd segment and is deeply notched on the crown, which is produced into two points directed slightly forwards; the face is flat and its position prone, the mouth being thus brought into contact with the legs, to which it is closely appressed, the legs themselves being crowded into the least possible space, and together with the head combining to form a mass the component parts of which are undistinguishable: the body is cylindrical, excepting that the back of the 2nd segment has two pointed projections placed transversely, and having the same direction as those of the head; moreover, each side of the body is dilated into a slight skinfold, and the dorsal surface is slightly wrinkled; the anal flap is pointed at the extremity, and has its margins slightly recurved; every part of the skin is delicately shagreened, or covered with minute sessile granulations; the colour of the head, as well as the legs, is pale purplish brown; that of the body apple-green, with a medio-dorsal series of purple-brown markings, almost a medio-dorsal stripe, excepting that it is interrupted at the middle of each segment; the lateral margins of these markings is decidedly paler, and has a bleached appearance; the lateral skinfold is yellowish, the granulations being still paler, and imparting to the sides a frosted appearance. I am indebted to Mr. Hodgkinson for a specimen of this larva, which he found feeding on Salix viminalis (the narrow-leaved or basket-willow or osier). Two doubts have been suggested with regard to this insect: *first*, whether the specimens, as now arranged in our cabinets, constitute a single species or two species; and *secondly*, whether either of these is the Phalæna viridata of Linneus. With regard to the first of these doubts it may be observed, that Zeller has proposed, and Herrich-Schæffer has figured, two supposed species, under the names of Viridaria (fig. 567) and Porrinaria (fig. 566): Viridaria is represented as having a tendency to slightly pointed and slightly falcate fore wings, and as having their costa ochreous or pale brown; while Porrinaria has no tendency to the pointed and falcate form, and has the costa perfectly concolorous with the disk of the wings, but the abdomen is tipped with ochreous. Guenée is unwilling to express any opinion on this question, not having seen specimens named by the authors themselves. My own specimens, ten in number, which are decidedly faded, as these green geometers will fade, have the costa slightly reflexed or turned over towards the upper surface of the disk of the wing (which is, indeed, a very common result of drying), thus catching the light, and they certainly exhibit an ochreous margin; in the outline of the wing there is a tendency to the falcate and pointed form; the abdomen is not tipped with ochreous: these specimens are, therefore, Porrinaria of Zeller and Herrich-Schæffer. I cannot say, however, that I am willing to change the name, more especially as I possess no specimen that agrees with Viridata of Zeller: the subject is well worth investigation. On the other question, whether our Viridata be really the Viridata of Linneus, happily the Linnean specimen described in the 'Systema Naturæ' still exists, and proves identical with this species taken as a whole; but if our insect be "split" then it will be very difficult to decide which moiety shall retain the Linnean name.—*Edward Newman.*

Description of an Ephestia new to Science.—Ephestia Figulilella expands from ½ an inch to fully ¾ of an inch. Head and thorax silvery gray; abdomen whitish gray; superior wing gray, finely irrorate; costa round, first stria acute from costa outwards to discal space, then nearly straight or slightly inward, forms a rather broken line across the first-third of the wing; second striga placed beyond the third of the wing, acute from costa towards the discal space, afterwards wavy inwards across the wing (this marking is often ill-defined), then a well-defined row of about seven dark squarish spots; cilia silvery gray, having three dark fine lines through it; the outer one, broadest in the disk of the wing, is often a well-defined cuneiform streak, the point towards the angle of the first striga, and the fold of the wing is ochrey yellow along its whole length; inferior wings silvery, somewhat hyaline, the nerves showing plainly; cilia silvery white. This fine and distinct species has now been plentiful upon warehouse walls, in Liverpool, for several years; and I have bred it, upon figs and raisins, from eggs laid by copulated females. The second brood have produced small specimens, no larger than E. elutella; from it or its variety, semirufa of Haworth. From E. ficella of Douglas, its round costa separates it at a glance.—*C. S. Gregson.*

On Turnip Insects during 1870. By James Hardy, Esq.

During the summer of 1870 the turnip beetle, or "fly" (Haltica Nemorum), has been a complete scourge throughout the Border counties. Turnips might be sown early or very late, in either extreme there was no palliative, so long as drought prevailed; and plants, insufficient in force for the maintenance of the devouring myriads, kept up merely a feeble and struggling existence. It was only through the advent of showers long delayed, and a mild atmosphere, that the crops got established, and at length out-grew their persistent persecutors; for not only did they swarm on the seed lobes, but continued to perforate the foliage and delay the growth, long after the plants were singled out; some even lingering in the fields till there were sizeable turnips. Near the sea-side the damage was not so great as further inland. My own Swedes did not require to be re-sown; but, as for the white turnips, it was by mere dint of persevering sowing that the ground got covered at all. Some parts of the fields, here, produce wild mustard, or "runch" (Sinapis arvensis). This was found to be a great preservative to the young turnip-plants, in allowing them to assume the rough leaf unbitten. The beetles took as readily to the mustard as to the turnip, it being their natural food; and I noticed that when the Swedes were nearly forward for thinning, the mustard obtained the preference. Owing to this, although the insects in some places lay on the plants like gunpowder, after side-hoeing and thinning the blanks were very few. I have heard that in other places, where mustard is in the soil, this also happened; so that it is not an unmitigated evil; being, in such seasons as the present, equivalent to thick sowing, in fields not liable to this weed.

I had previously remarked that the cruciferous wild plants (Arabis and Cardamine) on the dry banks were unwontedly frittered away during the present dry spring; but had no conception that such assemblages would spring, as it were, out of the dust so suddenly. If these feeding-grounds did not furnish all, they, at least, augmented the bands that gathered in on every side to invade the cultivated lands. It is wonderful, after all, that such a favourable crop has been realised. The disastrous outset in this district was, with the exception of the partial loss of the Swedes, in some measure repaired; and it was only some stubborn clayey fields that continued bare fallow, in spite of the master's skill.

Mr. Langlands has kindly furnished a notice of what happened to the crop in Northumberland:—"The ordinary turnip-fly was prevalent over all this district, with scarcely an exception, last summer. Its ravages were greater, and it continued them for a longer time, than I ever remember. In ordinary years it has generally attacked turnips—Swedes, especially—which have been sown early, and where the soil has not been in the most perfect tilth. This was not the case this season; the plants came away very well, and at first appeared to grow vigorously; when they were attacked by the fly, and withered off, leaving long stalks in many instances; the frosty nights completing the destruction. The flies continued to sweep off every fresh sowing,—one, two, three, and sometimes even four,—even after the middle of June, at which period we have, hitherto, always found the plants safe. Most of the Swedes were destroyed. I have a very few of the second sowing which escaped. The white turnip and hybrids that succeeded were also two or three times sown, and afterwards came away vigorously; and hereabouts have done well, mainly owing to the showers in August."

The turnip leaves were remarkably free from caterpillars; even the small caterpillar of the diamond moth was absent. In a few spots bordering the outcrop of rocks, which had supplied secure breeding places, I had a space of several yards breadth entirely eaten off by earwigs. They stripped the leaves, after the plants were thinned, leaving only the skeleton ribs; weeds and potatoes all went in the same way; till some change took place, perhaps the acquisition of wings by the young broods, when the nuisance abated. They fed only at night, and used to hide during the day in the soil, the fork at the tail being visible here and there at the surface, or clustered under clods and small stones. The workers killed numbers with their hoes; and for a few days the rooks and jackdaws held a high feast over the spot. This happened also at the sunny-side of stone walls, the turnip leaves being holed for some distance off.

But a still worse source of mischief lurked in some of the fields, and began to develop itself to an enormous extent towards autumn, *viz.*, the turnip louse, or Aphis, of which a notice was given in the Club's 'Proceedings' of last year. I first noticed them here among the Swedes (Aphis Brassicæ was the species), about the middle of September, on a few plants; whence in the drought of the last fortnight of that month, which was the most fruitful of all, they spread themselves in spots here and there, but did not occasion much hurt in this quarter. The worst effects of them anywhere that I witnessed was on Swedes, on the gravelly and sandy soils about Wooler. The Aphides had begun to predominate there, when the turnip casts its outer leaves, and while the drought and the mildew kept back the young foliage; and the consequence was most disastrous. The sickly leaves, oppressed with disgusting insects, hung flagging on the ground; and the plants drained of sap grew weaker every day. The smell of decaying turnips rose from the fields, fit to corrupt the air. The white and yellow turnips at the same time were infested with the green and pinkish Aphis vulgaris, called also A. Rapæ; and the fields wore as many tints of green, yellow and brown as the woods in autumn. I was told that in one inclosure the turnips were so disagreeable that sheep refused them. Other fields were being stripped of their produce to give to the cattle; thus losing a month or two's growth. One farmer told me, that as soon as the presence of the insects was manifest, he, in order to starve them, had got the tops of the Swedes cut off; and that they were sprouting again, and growing healthy. Crops that were kept growing were certainly best off, such as those latest sown, or those among the hills, on which only a few insects were present, while the earliest fared worst; but the proposed remedy is a desperate one, "more to be honoured in the breach than in the observance."

I have again recourse to Mr. Langland's report:—"In the beginning of September the turnip louse (Aphis Brassicæ) made its appearance; and its ravages on the early-sown Swedes, which had escaped the fly, were most pernicious. I was in the fine turnip district near Thirsk, and also on the Tees, at this time, and then first noticed the louse, which had already affected some fine fields of Swedes to a great extent. I found it appearing in this district, on my return, and it soon assumed a very destructive character. The early-sown Swedes, on the gravels and on strong land, seem to have gone off entirely. My own Swedes were partially affected only; but this I ascribe to the fact of being all later sown, and having suffered less from the drought. The Aphis prevailed with me, and did last year in circular patches; and not to any greater extent this year than last. I hear that East Lothian has suffered much. The worst, hereabouts, is near Wooler; and those I saw on the Tees were also very bad."

From East Lothian I have a communication from a competent authority, Mr. R. Scot Skirving, of Camptown. He is of opinion, in which I join him, that in Scotland we have little to fear from the "surface-grubs" of the Lepidopterous genus Agrotis, which Mr. Newman, in the 'Field' and the 'Entomologist,' considers to be so hurtful to the turnip. A much more deadly "grub" is that of the Tipula oleracea, or "crane-fly," which eats through the root just below the surface, and soon clears half a field. From this grub, this season, Mr. Skirving has lost, at least, thirty acres of turnips. He goes on to say:—"The 'fly' took the first sowing, the drought the second, and the crane-grub the third. From Tranent to Edinburgh, and all round Portobello, the turnips looked magnificent up to the end of August; and they almost caused me to 'envy and grieve at the good of my neighbour,' as I travelled on the railroad; but the turnip louse came and destroyed the Swedes, root and branch, and the fields became bare; whilst the soft turnips became bright orange, then dirty yellow and withered up, as if scorched by fire. This seemed rather *disease* than insect-work. Farms between Tranent and Edinburgh seem peculiarly liable to this, though I have seen it come all over the lower half of East Lothian. It does not attack Swedes."

The migrating epoch of the turnip Aphids took place in the end of September, as soon as the wings had developed; and for more than a week, during the calm and genial weather, they rose in succession from the turnip-fields along the valleys of the Till and Glen, till they became almost incorporated with the air, so intensely crowded they became. They grew very troublesome to those who had to go out. One had almost to breathe them. At night, or during dull days, they stuck to the threshold, to the grass by wall sides, or gathered upon hedges or trees. Many fell into the waters, or were swept from the grass on the brink. Beating the bushes for insects at Heathpool, I got my umbrella so filled with the roosting Aphides that I had to desist. Subsequently I saw that the flights had extended to Goldscleugh and Langley Ford, among the hills; several having been drowned in the burns. The "plague of midges," as they were called, was universal. At length came some heavy showers of rain and hail, which cleared the air, and perished and scattered the insects; and the turnips got up their heads again.

Entomology and other things at York.

By Edwin Birchall, Esq.

I had the pleasure lately of visiting, near York, the only English station of Epione Vespertaria: why Linnæus gave the name of Vespertaria, to an insect which does not fly in the evening, is a problem I am not prepared to solve; it can hardly have been on the *lucus a non lucendo* principle, for he lived before the facetious age of Entomology.

A flat boggy moor, covered with dwarf sallow bushes and ling and scattered Norway pines, looks and feels a dreary place soon after sunrise: the aspect of Nature varies with our own changing moods, and even fine scenery has no charm for a sleepy man. Coleridge truly said:—

"We receive but what we give,
And in our life does Nature live."

But it is Vespertaria's chosen place and hour:—

"The dew of thy youth is from the womb of the morning."

About 7 A.M. the first specimen is seen on the wing; another and another rises, and presently the whole heath is alive with the brilliant little orange moths. By 9 A.M. the numbers are sensibly fewer, and soon not one is to be seen; the flight is over for the day. All the insects on the wing were males; the female may be occasionally found hanging to a twig of sallow, but seems never, or rarely, to take flight. No disproportion of the sexes, however, exists; when reared from the larvæ the numbers are equal, which brings me to my second criticism on the published accounts of Vespertaria:—the larva does *not* feed upon nut, as stated by Stephens, Stainton, and Newman (copied, I fear, from some other author), but on the dwarf sallow; the eggs are deposited in July upon the twigs of the sallow, but do not hatch until the following May; at the end of June the larva changes to a pupa in a slight web between the leaves of the food-plant, the perfect insect emerging on or about the festival of St. Swithin.

Round the heads of the pine trees I have mentioned, circled clouds of Fidonia piniaria; and on the boles are found Lithosia helvola, Ellopia fasciaria, Tephrosia punctularia, Acidalia inornata, Macaria liturata, Thera firmaria, Scotosia undulata, and many commoner species. The York specimens of Helvola are much larger than any I have seen from the South of England; the female is bright yellow, at first sight looking almost like Quadra, without the black spots of that species: it is a well-marked variety; possibly a distinct species.

Vipers abound on the moor, and two were killed; one of them measured two feet in length. A nightjar's apology for a nest, with two eggs, and a fully-fledged young sparrow hawk, over which Mr. Carrington cleverly put his net, were amongst the miscellaneous captures of the day.

A visit to the moor at dusk produced Lithosia mesomella, Acidalia inornata, Aspilates strigillaria, Pempelia palumbella, Crambus margaritellus.

It is wandering too far from the subjects to which the magazine is devoted to mention that the ground, over which the day's ramble extended, is that which witnessed the defeat of Halfagar, king of Norway, by Harold, on the eve of the Norman Conquest, at the Battle of Stamford Bridge, whence he led his gallant but disabled army to its doom at Hastings. It is 800 years ago; but what Englishman can look unmoved upon the scene of Harold's victory? The aspect of the field of battle is probably but little changed; the Derwent flows through a richly-wooded valley; there is a picturesque pointed bridge of great antiquity, and an old corn-mill by the waterside, with a little village clustered round it, much the sort of thing we may suppose to have existed here in Anglo-Saxon times; and somewhere near is the Northman's grave, that "six feet of English soil, or more, if his stature required it," which were the only terms Harold had to offer the invader.

In the woods, near Stamford Bridge, Arge Galathea formerly abounded, but it has not been seen for some years; indeed, several of our most conspicuous butterflies (notably Io, Paphia, Rhamni and Galathea) have lately become rare, or disappeared from the neighbourhood of York, Leeds and Sheffield, and this not from any "improvement" of the land, or, so far as appears, any alteration of the former conditions of their existence, but simply from their merciless pursuit and wholesale slaughter by the makers of butterfly pictures. The numbers thus annually destroyed are almost incredible. I have known 250 peacocks used in the construction of an elephant, and upwards of 500 Vanessa Urticæ in the figure of a crocodile 3 feet long! Galathea was an especial favourite with the tribe; a portrait of Lord Brougham in butterflies, the checked trousers depicted by Galathea's wings, is considered a very clever work of art. The ancient story of "Acis and Galathea" seems to have come true; that Entomological monster, the butterfly-picture maker, taking the rôle of Polyphemus in the tragedy:—

"When fatal chance
His looks directing with a sudden glance,
Acis and I, were to his sight betray'd,
Where nought suspecting, we securely play'd.
From his wide mouth a bellowing cry he cast—
I see, I see; but this shall be your last:
A roar so loud made Ætna to rebound,
And all the Cyclops labour'd at the sound.
Affrighted with his monstrous voice, I fled,
And in the neighbouring ocean plung'd my head.
Poor Acis turn'd his back and Help, he cried,
Help Galathea, help my parent gods,
And take me dying to your deep abodes.
The Cyclops followed; but he sent before
A rib, which from the living rock he tore;
Tho' but an angle reach'd him of the stone,
The mighty fragment was enough alone
To crush all Acis; 'twas too late to save,
But what the fates allow'd to give, I gave
That Acis to his lineage should return,
And roll among the river gods, his urn."

Ovid's *Metamorphoses*, Book 13.

August 8, 1871.

Entomological Notes, Captures, &c.

Captures on the Kent and Essex Coasts:—

Liparis dispar. Entomologists will be pleased to hear that Liparis dispar is by no means extinct, as the larva is not uncommon on the straggling bushes of sloe, white-thorn and wild rose, bordering the Essex marshes below Tilbury.

Emmelesia unifasciata. I am now breeding unifasciata from larvæ found last September, on flowers of Bartsia odontites, in this neighbourhood.

Pterophorus acanthodactylus. I may also mention that the larvæ of P. acanthodactylus feeds on the same plant at the same time; I bred several last October. The perfect insect hybernates.

Acidalia strigaria and Lythria purpuraria. I have again taken A. strigaria and L. purpuraria. Strigaria appears to be attached to Salvia verbenaca; but I am not yet prepared to say it is the food-plant of that species.

Pachetra leucophæa. I have a beautiful specimen of Pachetra leucophæa taken at Gravesend, on a wall, in the day-time, May 24. It was captured by Mr. R. W. Bowyer, of Haileybury College, who left it with me to name. It is a very strongly-marked specimen, and in perfect condition.

Eupithecia togata. I have taken a fine specimen of E. togata at light, in Rosherville Gardens, which is a capital place for insects.—*D. T. Button.*

Captures of Lepidoptera in July:—

H. Leucophearia. One very beautiful male on Victoria Park fence: 27th February.

A. Prodromaria. One on Hackney Marshes: 19th March.

C. Temeraria. At Loughton: 8th May.

N. Trepida. I found the eggs of this species on oak at Loughton, on 14th May.

O. Guttella. At Loughton, on 26th May.

D. Grotiana, S. Achatana, S. Rosæcolana, E. Signatana: at Loughton, 10th July.

P. Roborella, R. Suavella, R. Advenella, R. Marmorella, P. Dilutella, A. Flexula, C. Angustalis, C. Pinetellus, C. Splendana, C. Juliana, E. Tetragonana, S. Janthinana,

O. Funebrana, S. Redimitana, H. Nemorella, G. Gerronella, G. Mouffetella, G. Rhombella, G. Fugitivella, E. Lunarella, C. Palliatella, C. Currucipennella, A. Albistria, A. Mendicella, A. Semifuscella: I took all these species at Loughton, from the 12th to the end of July.—*William Machin; 21, Argyle Road, Carlton Square, Mile End, August* 11, 1871.

Captures near Canterbury during the last fortnight in July.—I send you for publication in the 'Entomologist' a list of my principal captures during the last fortnight in July, thinking they may interest some of its readers:—

C. Hyale. One male: on the 30th July.

A. Paphia. A fine series, including several of the female variety valezina, and a fine variety of the male.

A. Adippe. A fine series.

M. Athalia. Only a few stragglers.

A. Galathea, S. Semele and Hyperanthus. Abundant.

T. Quercus. A nice set.

L. Ægon. A fine series of males.

L. Corydon. In swarms.

H. Comma and H. Linea. A fine series of each.

N. Strigula. A beautiful series; at sugar.

N. Senex. One; at sugar.

C. miniata. Plentiful; at sugar.

L. mesomella. A few; at sugar.

L. complana. A fine series; at sugar.

L. complanula and griseola. A few; at sugar.

L. chrysorrhœa. Bred a fine series, including several varieties.

L. monacha. One, bred from a larva taken off sugar.

A. prunaria, G. papilionaria, E. heparata, A. osseata, A. inornata. A few fine specimens of each.

C. picata. A fine series.

T. derasa, T. batis, C. duplaris, C. or, C. fluctuosa. A few fine specimens of each.

A. leporina and A. Ligustri. A few series, including a variety of the latter.

T. fimbria. Excessively abundant; as many as twenty with every variety of colour on one tree.

H. derivalis and S. cratægella. A fine series of each of these; at sugar.

C. pinetellus and R. consociella. Common; at sugar.

A. Aglaia, E. ochroleuca and T. obscurata are just coming out.—*George Parry; Church Street, St. Paul's, Canterbury, August* 4, 1871.

Agamogenesis in Orgyia cœnosa.—Three weeks ago I found, in Wicken Fen, a full-grown larva of O. cœnosa, and I put it in a box by itself. During the night it spun its cocoon, and five days afterwards it emerged, a fine female; a few days after it laid more than fifty eggs: they duly hatched, and are now under the care of Mr. Hellins. I am quite certain that this female was not impregnated before laying its eggs, as it was completely isolated from coming into contact with any male. A similar circumstance occurred with me some few years ago; the species then were Smerinthus Tiliæ and S. ocellatus.—*Thomas Brown; 13, King's Parade, Cambridge, August* 18, 1871.

Curious variety of Argynnis Euphrosyne.—Upper surface: fore wings fulvous, almost entirely covered up with black; the fulvous markings are an indistinct patch at the base, broad at the inner margin, and sending a narrow streak along the hind margin; three small indistinct spots on the right, and two on the left wing, near the centre, and six oblong blotches from beyond the centre to the hind margin; each of these, except the one nearest the costa, contain about their centre a large indistinct black spot. The hind margin consists of black triangles running up to the centre on the wing-rays; the hind wings are black, except a row of oblong blotches on the hind margin, similar to those on the fore wings, but containing no black spots; the under side of the fore wings is yellow at the apex, and the remainder reddish orange, with eight black spots of various sizes near the centre; on the under side of the hind wings the silver spots entirely cover the hinder half of the wings; each spot is, however, kept distinct by the reddish wing-rays; the central spot is produced, both wings meeting the silver spot on the hind margin, and running up to the base of the wing; there are two silver spots at the base, and one on the costa; the rest of the wing is bright ochre-yellow; all the markings are indistinct, the colours running one into the other, especially so on the upper surface. I took this variety here, on the 24th of May, in company with a number of commonly-marked specimens.—*F. E. Harman; The Valletts, Whitfield, near Hereford.*

Agrotis puta.—I took a specimen of this moth on the 29th of May. Is it not very unusual for this species to be double brooded?—*Id.*

Acronycta Alni near Chesterfield.—I have a good specimen of Acronycta Alni, taken at rest on oak, by John Beresford, near Chesterfield, on the 20th June. He informs me that, although a collector forty-five years, this is only the third he has met with; the other two both being taken in one season.—*John M. Hewitt; Fairfield, Brampton, Chesterfield, July* 6, 1871.

Photedes captiuncula at Whitbarrow, near Bowness; Rothliebii at Witherslack.—Observing that both yourself and Mr. Stainton give Darlington as the only locality for Photedes captiuncula, I am induced to send you another, *viz.* Whitbarrow, near Bowness, where I took it in June last, flying swiftly in the sunshine. C. Davus *var.* Rothliebii was out at Witherslack on June 17th, in fine condition.—[*Rev.*] *Windsor Hambrough; Clarendon House, Worthing, July* 9, 1871.

Lobophora hexapterata al Limerick.—I took this insect freely on the evening of the 20th of May and few following days. Many were paired on the trunks of the aspens; they laid their eggs seven days after: the eggs took five days to hatch: the larvæ are, I think, nearly full grown. I send you some by this post for description, as I have not seen it described by you. I hope they will arrive safely.—*William Talbot; Tieraclea, Tarbert, Limerick.*

[They arrived in perfect safety. Please to accept my best thanks.—*Edward Newman.*]

Food of Homœosoma saxicola of Vaughan.—Whilst in the Isle of Man taking the larvæ of Polia nigrocincta, this month, I paid some attention to Homœosoma saxicola (*Vaughan*), and took a good series, which are identical with specimens bred by me from larvæ, taken by myself and Mr. Warrington, feeding on the flowers of Matricaria inodorata, some years ago, at Port Soldoric or Sodoric, a few miles from Douglas. I also set a long series of Sesia philanthiformis, which I shall be pleased to send to any of my old correspondents, still wanting it, who will remind me, or to fellow-workers unknown to me, on their sending boxes, or to those who prefer exchange for any Sesia, except tipuliformis: perfect specimens wanted to replace old ones.—*C. S. Gregson; Rose Bank, Fletcher Grove, Edge Lane, Liverpool, June* 25, 1871.

Macaria alternata and Diphthera Orion at East Looe.—I have taken one specimen of Macaria alternata and several of Diphthera Orion this year.—*Stephen Clogg; East Looe, July* 12, 1871.

Extracts from the Proceedings of the Entomological Society,
July 3, 1871.

Coleoptera collected in Ireland.—Mr. S. Stevens exhibited a collection of Coleoptera formed by him during a recent tour in Ireland. The most interesting species was Chlænius holosericeus, of which he had captured several examples at Killaloe, near Lough Derg.

[The complete list is published in the 'Entomologist' for August.—*Edward Newman.*]

Emus hirtus in the New Forest.—Mr. Champion exhibited Emus hirtus, recently captured by him, in cow-dung, in the New Forest; being the only instance of its occurrence since the late Mr. Alfred Haward found a specimen many years since. He also exhibited two new British species of Hemiptera, *viz.*, Corizus Abutilon and Drymus latus.

Botys fuscalis, with a portion of the puparium still attached.—Mr. Stainton exhibited (on behalf of its captor, the Rev. R. P. Murray) an example of Botys fuscalis, from the Isle of Man, to the head of which still adhered a portion of the puparium. The antennæ and haustellum were free, but the case of the latter projected perpendicularly from the under side of the head, simulating the rostrum of a Panorpa. The insect must have been nearly blind, yet it was flying briskly at the time of capture.

Insect-enemies of Strawberries.—Mr. Dunning read a letter he had received from the Rev. W. H. Wayne, of Much Wenlock, stating that both this year and last his ripe strawberries were infested by a small Myriapod, which entered into the interior; there were often six or eight in one strawberry, and they were often eaten without detection. Mr. Wayne also stated that his young carrots were injured by what he seemed to consider the same creature, but, from examples he sent, the depredators in this case were evidently the larvæ of a Dipterous insect, Psila Rosæ. The larvæ first showed their presence by a slightly crumpled appearance of the leaf, which commenced to drop. On taking up the carrot no root-fibres are observed, the slender portion being dry and brittle, and in the centre is found the larva. He observed that all his neighbours' gardens were infested in a similar manner. Mr. Druce said that the carrots in his brother's garden, at Kingston, were destroyed by the same larvæ.

Monograph of Stylopites.—Mr. S. S. Saunders read a paper on these parasites, dividing them into subfamilies, according to the Hymenopterous tribes with which they are associated: namely (1), the true Stylopidæ, found with the Mellifera of Latreille; (2) the Myrmecolacidæ, with the Formicidæ; (3) the Xenidæ, with the social wasps; and (4) the Pseudoxenidæ, with the solitary wasps and Fossores; these latter tribes coinciding more or less in their habits and economy, and requiring about eight or nine months (from one year to the next) to attain maturity; involving a corresponding detention for their Strepsipterous dependents; whereas the true Xenidæ, corsorting with the social Vespidæ, must be reared from their primary hexapod condition in from thirty to forty days, such being the term within which the larvæ of the social Vespidæ attain the imago state; the females of the latter hybernating with those of Xenos, which produce their larval brood the ensuing year; whereas the Pseudoxenidæ, after their long-protracted larval condition as aforesaid, must produce their young the self-same year in which they themselves complete their transformations, in order that their brood may obtain access to the future larva-cells of their non-hybernating foster-parents. As a sectional division for those which associate with the Fossores (as first noticed by Dufour), Mr. Saunders proposed the term Paraxenidæ. The genera and subgenera recorded were eight in number, comprising 21 species, as follows:—Halictophagus, 1; Stylops, 5; Hylecthrus, 3; Elenchus, 3; Myrmecolax, 1; Xenos, 2; Pseudoxenos, 3; and Paraxenos, 3. Of these 16 were European (whereof 7 British), and 5 extra-European.

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Answers to Correspondents.

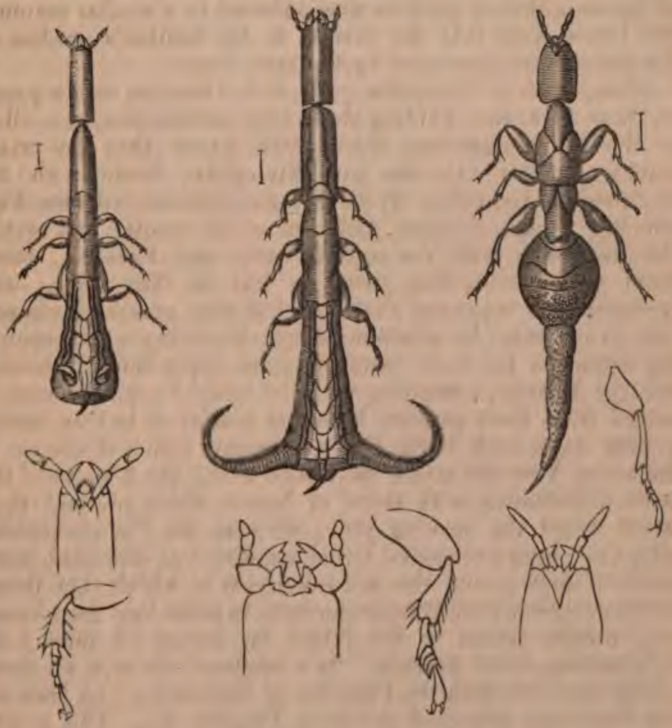
Fig. 1.
Fig. 2.
Fig. 3.

BLIND INHABITANTS OF FIGS.

Fig. 1. Apocrypta perplexa. Fig. 2. Apocrypta parodoxa. Fig. 3. Sycocrypta cœca. All the figures magnified; the line by the side of each shows the natural length. The anatomical details, also magnified, are given below the entire figures.

The Blind Inhabitants of Figs.—The so-called caprification of figs has long been attributed to the punctures of a species of Cynips, called Cynips Psenes, and although the soundness of this view has been disputed by a most distinguished traveller and observer, Hasselquist, and also by one of our most learned entomologists, Olivier, still the phenomenon of caprification and its accelerations, through the instrumentality of insects, are matters of current faith. It is said that the Cynips is induced, by the earlier ripening of the wild fig, Ficus terragena, to prefer these as a nidus for its eggs, and that the larvæ produced therefrom, having thus become denizens of these figs, go through their metamorphoses earlier than they would have done in the cultivated species, and when ready to emerge they become covered with pollen, which they carry with them wherever they go. The cultivators, taking advantage of this propensity, gather the wild figs, and place them near the cultivated ones; and the pollen-covered insects have thus the opportunity of conveying the fertilizing element to the latter. "Such is the account of the process given by some authors; but Lindley ('Penny Cyclop.' vi. 273), DeCandolle ('Physiol. Végét.' p. 580), Treviranus (in 'Linnæa,' 1825, with figures of the insect), and other vegetable physiologists, attribute the earlier ripening of the otherwise later crop, and the opportunity thus afforded to the fig-growers of the Levant of obtaining a double crop in a season, to the well-known fact, that fruit bitten by insects ripens sooner than others; the wound, and not the act of impregnation, appearing to act as a stimulant to the local action of the parenchyma." ('Westwood Introduction,' vol. ii. 165.) This brief but comprehensive summary of the opinion of these learned naturalists, by removing one difficulty rather tends to introduce another, for it assumes that the Cynipidæ, in their perfect state, are vegetable-feeders, an assumption which the discoveries of Dr. Coquerel, as cited below by Mr. Walker, seem to support. Mr. Walker places the strange creatures, of which he has most obligingly lent me the carefully-finished figures, in the family Agaonidæ. This family forms part of the section Chalcidiæ, on which he is issuing a work in small fasciculi, four of which have already appeared. His observations on the Agaonidæ are as follows:—"The Agaonidæ appear as yet chiefly in three different aspects, and in three different regions. The first region is the Mauritius, where they have been discovered by the researches of Dr. Coquerel. Here the three species figured are said to be 'condemned to eternal darkness' in the central regions of figs. These figs are the fruit of Ficus terragena, and are unfit for human food. Dr. Coquerel found the three species (the figures of which are given above, copied from the plate in the 'Revue et Magasin de Zoologie,' 2nd series, vol. vii. pp. 365 and 422) in abundance in the interior of these figs, together with great numbers of a fourth species, which he named Chalcis? explorator, and which he believed to be parasitic on the other three species. However, he did not ascertain it to be so, but merely observed that the four species were mingled together, and he had previously seen the explorator flying about the outside of the figs. The other three species, he observes, are remarkably inactive: when disturbed they roll themselves together and remain motionless; they have no eyes, no ocelli, no palpi, no maxillæ, no wings; but have powerful mandibles. Dr. Coquerel mentions that they have analogy with Scleroderma contracta, and supposes that the males are winged and unknown, and may have their place next to Scleroderma. Scleroderma has no near affinity with the Bethylidæ, and has been supposed by some to belong to the Mutillidæ, and by others to be the female of Myzine: it has some resemblance to the female Australian and South American Thynni, and by these connections the primitive and semichaotic forms, discovered by Dr. Coquerel, expand into the numerous and powerful tribe of aculeate Hymenoptera, surpassing other insects in intellect, of which the wasp and the bee are most familiar examples, though a great part control other orders of insects, by using them as food for their young. Scleroderma seems to have more affinity with Typhlopone, the 'worker' of Labidus, and with Dichthadia glaberrima, the supposed female of Dorylus; and thereby the multitudinous tribe of ants, whose economy is so remarkable, emerges from the blind and radical Apocryptæ and Sycocryptæ, the perpetual dwellers in the interior of figs. But the affinity of these two genera to the Chalcidiæ is more evident, and appears by several connecting links in the Agaonidæ; and thus the near relations to the general ancestors of the thousands, and perhaps tens of thousands, of the Chalcidiæ species, the tribe being considered in unity, are cradled in figs. The Chalcis? explorator of Dr. Coquerel is an Idarnes, and has a resemblance to the Podagrion, figured in Part 3, but is much smaller, has a much longer oviduct, and has slender hind femora. It flits about the outside of figs, and by means of its long oviduct it comes into juxtaposition with the blind inhabitants within, of which it is a relative, though by many removes. It, doubtless, wings its way from fig to fig when full grown; but the succession of the other fig-dwellers is not known. The following species of this family have been observed in the figs of Ficus Indica, in Hindostan, by Sir Walter Elliot, who saw several other species of insects feeding on the fig-juice that flowed in consequence of the occupation of the Agaonidæ within. He has remarked that of the genera resembling some Hymenoptera and Termes, or the white ant, we have workers as well as males and females." The species to which Mr. Walker alludes in this paragraph are Sycobia bethyloides, Idarnes transiens, I. stabilis and I. pteromaloides, and Sycophila megastigmoides and decatamoides: so far as known they are all connected with figs, either as food or as a habitation. Mr. Walker concludes his paper on the Agaonidæ with the following observations:—"The Agaonidæ occur in the Mediterranean region, where they have been used in ancient time and in modern time for caprification, a process which has been described by various writers. Two of these species have been named Blastophaga Sycomori and Sycophaga crassipes: the latter has a long oviduct, and therein resembles Idarnes. Agaon paradoxum represents this family in Sierra Leone; it and Blastophaga are connecting links between Idarnes and Sycobia, from which they differ in not having prominent mandibles. Idarnes Carme inhabits St. Vincent's Isle, in the West Indies, and exceeds the other species in the length of its oviduct. Idarnes and Agaon were first included in one family by A. H. Haliday. Paphagus Sidero also inhabits St. Vincent's Isle, and belongs to the Agaonidæ. Cinospilus Acasta, a native of England, established as a genus by the names of Anthophorabia and of Melittobia, may be placed next to the Agaonidæ. It has been often said that the present state of one region of the earth, as regards its vegetation and animal life, resembles the much earlier state of another region, and thus the aspects of the Agaonidæ in different regions represent successive epochs of time, and indicate how much there is yet to be learned by the investigation of figs. Perhaps some forms may be discovered that are more elementary than the species here figured, and are more characteristic of 'the dark backward and abyss of time.' There will be much difference of opinion as to whether the chain of affinities in the Agaonidæ is merely a proof of the unity of system, or whether individuals in some cases continue comparatively undeveloped, and in other cases become comparatively highly organized, like as the same parts of plants are formed into thorns or into leaves or into flowers." It seems almost impossible to overrate the interest which attaches to this subject of fig-dwellers. The circumstance that these creatures are without the means of vision or locomotion does not, indeed, appear extraordinary, seeing they are condemned to perpetual darkness and perpetual imprisonment. Of what use would eyes or wings be to them? Then, again, of what sex are they? Is there any relationship, I mean consanguinity, between the prisoners and the winged atoms flying from fig to fig? And these are females, invariably females, with long ovipositors that *could* communicate with the imprisoned. We have winged males and apterous females in Lepidoptera. Can we have winged females and apterous males in Hymenoptera?

Black-varnished Pins.—For many months I have been endeavouring to discover a manufacturer of black-varnished entomological pins. These pins should be substituted for the silvered-brass pins, which corrode in the body of insects, more particularly of Micro-Lepidoptera, very soon disfigure them, and eventually utterly destroy them. I am told the article required is made at Vienna, and, if so, I beg some brother entomologist will give me the address of the maker. —*Peyerimhoff.*

Our colleague is obviously right in saying that brass pins are very bad to use for Micro-Lepidoptera. Varnished brass pins will probably last somewhat longer, but it is probable that these also will eventually perish in the same way. We believe that platinum wire is perfectly indestructible, and open to none of the objections which are made to brass. Certainly nothing but platinum will, therefore, be used for very rare specimens.—*Editor; P. N. E.*

Educational Collection of Insects.—M. Deyrolle is making a number of educational collections for the use of those who are beginning the study: he is in utter want of some of the most common species in considerable number for this purpose; for instance,—the more common species of Cicindela, Carabus, Coccinella, &c. among Coleoptera; Pieris Brassicæ, Agrotis Segetum, &c. among Lepidoptera,—Forficula auricularia, Libellula, Vespa, Apis mellifica, Notodonta, Thrips, &c. I most cordially approve of this method of teaching, and hope the example may be followed in this country, where we at present have no idea of educational collections.

Monograph of the Genus Phalacrus.—M. Tournier is about to publish a monograph of the genus Phalacrus; the plates are engraved, and the descriptions are ready to be placed in the hands of the printer.—*P. N. E.*

Borbopora Kraatzii.—M. Henri Brisout de Barneville has captured, at Marly, this very rare little Staph, which might be taken at first sight for Autalia: this little insect, which had been found in England and described in Germany, had only been once previously taken in France, by M. Aubé. This unique specimen still remains in his collection.—*P. N. E.*

Entomology of Syria.—I have been unfortunate in collecting at Acre and Nazareth, but have succeeded better in my campaign at Baalback and Stora, whence I have to report a number of interesting species. Not having my notes at hand, I must defer to my next letter a detailed report; but I may mention having taken Pimelia bajula, Zophosis asiatica, Amnodeis giganteus, Adesmia area and carinata, Tentyria collatina, Colyptopsis Jeremias, an undescribed Dorcadion, some magnificent species of Malachius, a singular Hister which resides in ants'-nests, Thorictus orientalis, &c. I have received from Jaffa a specimen of Ateuchus Silenus: as it may be presumed this insect will readily be found in that locality, I shall look for it very diligently, for it is a very interesting species.—*Peyron; P. N. E.*

Collections of M. Armand David.—We have had an opportunity of examining the collections made by this industrious entomologist, of which we have already spoken from the Report of M. Blanchard. We observe that tropical forms prevail among the Lepidoptera, and boreal, or European, among the Coleoptera, although each class exhibits this mixture in a very decided manner. Among the Coleoptera which were not mentioned in M. Blanchard's Report, we observed some of great interest, such, for instance, as the Cicindela tricolor of Siberia, three species of Purpuricenus (two of which closely resemble our own), a species of Anoplistes, a magnificent Dorcadion, a Clytus of large size and very remarkable appearance, a Cyrtognathus, a species of Akis, several Gymnopleuri, Sisyphi and Orthophagi (nearly related to oar own species), Anomala holosericea, &c. We have been disappointed at noticing, in three boxes of Coleoptera, the absence of the more striking species, such as Carabus pustulifer, Eriplotrupes sinensis, the Goliathi, and others no less interesting. It can scarcely be the fear of accidents to these valuable species that has prevented their exhibition, since admission was by tickets, which were only handed to gentlemen occupied in natural-history pursuits. It cannot be the fear of injury from light, since the collection has scarcely been exposed a week; and the Lepidoptera, the colours of which are most sensitive in this respect, are not yet exposed; while the Coleoptera are placed so nearly in the dark that they can scarcely be seen, much less examined. —*Editor; P. N. E.*

Anthicus bimaculatus.—Dr. Marmottan, in an excursion he has lately had in company with M. Berce, has discovered, in an essentially dry spot in the Forest of Fontainebleau, specimens of Anthicus bimaculatus, a species well known as a dweller on the sea-coast and the banks of rivers, but not previously found in dry situations.—*Id.*

Coleoptera near Nantes.—At the last sitting of the Entomological Society of France, M. Chevrolat gave some account of an entomological excursion he had made, during the second siege of Paris, to Saint-Florent-le-Vieil, near Nantes. He found two beetles new to Science:—a Sitones, which he proposes to call S. guttulata; and an Orchestes, for which he proposes the name of A. luteicornis.—*Id.*

Limexylon navale.—M. Berce observes that this beetle, noticed in the last 'Entomologist,' is very common in the timber-yards, and has occurred in the forests of France. It was esteemed rare in the Forest of Fontainebleau, where single specimens only have been taken; but this year M. Berce has met with it in immense profusion in oaks which had been felled: the females were engaged in oviposition, which they accomplished by introducing their ovipositor into the fissures made in cutting the trees. It is evident that the trees thus infested will be rapidly destroyed; but M. Berce thinks they might readily be saved by some of the numerous applications recommended to preserve timber.

Cockchaffer in March.—During the past March one of our men has found several specimens of the common cockchaffer, Melolontha vulgaris (which the country people here call the "May beetle"), buried in the earth. One which the man brought me last week was alive, and in fair condition. As I cannot find a complete life-history of this insect in my books, I am curious to know if these specimens emerged from the pupa during the autumn, and passed the winter in the perfect state under-ground.—*C. J. Watkins; King's Mill, Painswick, March* 3, 1871.

The larva of the common cockchaffer is found in that state during nine months of the year, but of various sizes and in various degrees of maturity. It is said to live four years before turning to a beetle; and I believe this final change generally takes place in March or April.

Name of a Moth.—Would you kindly tell me what moth the two enclosed wings belong to? I cannot find it amongst the Noctuæ, to which it evidently belongs, in your work on 'British Moths.' I found them in a spider's web.—*John A. Lilly; Collaton Vicarage, August* 21, 1871.

The wings are those of Halias quercana: it is not included in my volumes of 'Butterflies' and 'Moths,' because these only comprise the Macro-Lepidoptera. I adopt the division employed in Staudinger's Catalogue; leaving the Micro-Lepidoptera for a more competent hand.

Tenacity of Life.—A somewhat remarkable instance of tenacity of life in insects came under my observation on July 17th. On the morning in question the enclosed insect, or rather portion of an insect, was crawling up a blade of grass, and attempting to fly. It attracted my attention from the peculiar manner in which the fruitless attempt was made. I boxed it, and it lived through the whole of that day and the following night, and up to the following mid-day. How long it had been in this almost bodiless state, before I saw it, of course I cannot say; but it certainly lived some thirty or forty hours after I found it, in its present very mutilated condition. I supposed a bird might have been the cause of this mutilation. What is the insect?—*G. Bentley Corbin; Ringwood, August* 24, 1871.

The insect is Eristalis tenax: its abdomen was completely gone.

Moths and "Sugar."—Why is it that we so much more frequently take *males* than *females* of those species which are attracted to our sugar-bait? And the same question may be asked of "light." Are we to suppose there are a superabundant number of the former, or that the latter are less active, and, consequently, less oftener met with? In rearing we often find a pretty equal balance in the number of the two sexes; but at sugar, and even with the net, the males are ten to one of some species. The other day in speaking on this point to a friend, who is much in the habit of sugaring, he introduced what to *me*, at least, was a new hypothesis, *viz.*, that a female of any moth taken at sugar seldom deposited eggs, and if such a thing happened they never produced larvæ. Is such a fact proved, and is it well known? It would depend, I should say, upon what the so-called "sugar" was composed of, as we are well aware the receipts for it are various; some containing poison, others none.—*G. Bentley Corbin.*

These are questions which my kind correspondents, the Rev. Joseph Greene and Mr. Doubleday, are far better qualified to answer than I am: my experience in sugaring is very limited. I hope they will kindly reply.

Larva of the Cinnabar Moth.—I have forwarded to you a box containing a larva, and shall be much obliged if you will be kind enough to let me know its name (Latin and English). I have sent some of the food I found it reposing on; and shall also feel it a favour if you will tell me whether it feeds on anything else?—*B. W. Neave; 6, Montague Street, Worthing, August* 6, 1871.

The Cinnabar (Euchelia Jacobææ) is figured No. 68, at p. 31, of 'British Moths:' it feeds on the Ragwort (Senecio Jacobæa), and nothing else.

Tape-worm in the Biliary Ducts of Salmon.—Can you tell me the name of a tape-worm which inhabits the biliary ducts of salmon? I got some a few days since, and wish to know the name.—*William Talbot; Tarbert, Limerick.*

Will some correspondent who understands the subject kindly answer this.

Parasitic Acarus on Crane-flies.—Whilst sugaring in the New Forest this year, I observed a crane-fly on the sugar, several of whose legs had little red Acari clinging to them, the same kind, I should say, that I have observed this year on the antennæ of several Noctuæ, especially Rusina tenebrosa. —*Edward F. Bisshopp; Berners Street, Ipswich, September* 4, 1871.

Those on the crane-flies are certainly Ocypede rubra (see p. 374); those on the antennæ of Noctuæ I can only suppose to be the same.

EDWARD NEWMAN.

Description of the Larva of Acidalia Emutaria.—A female Emutaria, taken July 26th; egg hatched, August 3rd; fed on Polygonum aviculare; some larvæ full grown, August 27th. Length, when full fed, about an inch; skin rugose, colour of an iron-gray; head iron-gray, with two lines of a darker shade on upper side; dorsal line dark iron-gray, inclining to black on either side; subdorsal lines scarcely darker than ground colour; spiracles black, on each side of the dorsal lines on the 3rd segment is a small black spot, in size and shape like a spiracle; belly gray; a few bristles, most on the first 3 segments, are scattered over the body. When disturbed the larva assumes a perfectly straight position, with the head and prolegs directed forwards; if much irritated, it falls from food-plant and rolls itself up.—*A. B. Farn; September* 13, 1871.

Description of the Larva of Acidalia immutata.—On July 21st, 1870, I received a few eggs (or rather larvæ, as the eggs had hatched on the way) of Acidalia immutata, from the Rev. J. Hellins, of Exeter; and, subsequently, the Rev. E. N. Bloomfield, of Guestling, near Hastings, sent me a further supply of eggs. The young larvæ fed until the autumn on Polygonum aviculare, when they began to hybernate, having attained a length of half an inch, and being of average thickness in proportion. Head a little broader than the 2nd segment, rather flattened and slightly notched on the crown; body of nearly uniform width, but tapering very slightly anteriorly; skin very finely, but almost inconspicuously, ribbed transversely; ground colour pale olive-brown; head brown, marbled with gray; medio-dorsal stripe very indistinct; on the anterior segments it is composed of a very fine double line, darker than the ground colour; these lines conjoin and become darker, and more conspicuous posteriorly, forming a distinct black stripe on the 10th, 11th, and 12th segments; there are also four square black marks at equal distances apart on the dorsal surface, each of which is divided into two equal parts by the medio-dorsal line; the sub-dorsal lines are brownish gray, and the spiracular lines gray; ventral surface olive-green, thickly variegated with darker, and having two almost imperceptible dark green central lines. In other specimens the belly is grayish in the centre, gradually becoming darker as it approaches the spiracular region, where it is smoky black. When at rest the food-plant is grasped by the claspers, and the head curved inwards.—*Geo. T. Porritt; Huddersfield, September* 15, 1871.

Entomological Notes, Captures, &c.

Argynnis Lathonia at Ipswich.—On the 11th of September I captured a fine specimen of Lathonia, near Ipswich. —*C. F. Long.*

Argynnis Lathonia near Ipswich.—Last week a most beautiful specimen of A. Lathonia was captured in a clover field about three miles from here, which I now have the pleasure of possessing.—*Edward F. Bisshopp.*

Variety of Argynnis Euphrosyne.—On Whit Monday I captured a splendid variety of Melitæa Euphrosyne in fine condition: the upper side of the wings is suffused with black; the silver spots on the under side of the inferior wings are continued in lines to the base of the wing.—*James Parsons; Currier's Lane, Ipswich, July* 13, 1871.

Limenitis Sibylla.—I drove to Doles Wood, near Hurstbourne Tarrant, yesterday, and took about a dozen Limenitis Sibylla, but all very much rubbed; quite three weeks too late for this species: wanted them for my friend Mr. Wells, at Kensington. Saw scores.—*Henry Reeks.*

Varieties of Limenitis Sibylla and Argynnis Paphia.—I have had the good fortune to take three of the black variety of Limenitis Sibylla this year, and a good variety of a male Paphia, very similar to the one figured in 'British Butterflies.' I may mention Mr. Farn has seen the latter, and thinks it a very good one; but it is, I am sorry to say, not perfect.—*Edward F. Bisshopp.*

Thecla W-Album at Bristol.—T. W-Album has occurred in tolerable plenty the last two seasons in the larval state, feeding on wych elm, at Coombe Glen, Bristol.—*F. D. Wheeler; 2, Chester Place, St. Giles, Norwich, August* 11, 1871.

Larva of Argiolus.—While reading the account given in your 'British Butterflies' of the life-history of Argiolus, it occurred to me that the following particulars might be worth noting. I find on referring to my journal, that while beating ivy for moths at Bristol, in the autumn of 1869, I took, on October 9th, one larva of P. Argiolus, and, on October 11th and 13th, two more, all of which turned to pupæ November 1st to 3rd, and in that state passed the winter. One of them died; the other two emerged in April, 1870. Again, in September last year, I took another small larva on ivy, at Norwich, which, however, died before arriving at maturity. I think this tends to prove the existence of at least two broods in the year, which is rendered more probable by the freshness of the April specimens, very different from what we should expect in hybernated insects. Both my bred specimens were females, and both crippled in the hind wings.—*Id.*

Lycæna Salmacis in Berwickshire.—Berwickshire seems to be a pretty good county for butterflies and moths, but being a beginner, and having little time at command, I have made, as yet, comparatively few captures. On Monday the 10th, however, having a half-holiday, I captured what I thought to be Artaxerxes, having heard that it occurred in the neighbourhood, but which I find on looking up to be Salmacis, having the scalloped bar on the upper wings, and wanting the central spot on the under wings. I saw one specimen of Blandina, which I failed to capture; while I caught five specimens of Aglaia in grand condition.—*F. Burder; Dunse, July* 19, 1871.

Leucophasia Diniensis at Witherslack.—I had forgotten to note that early in August I took a fine specimen, at Witherslack, of Leucophasia Diniensis, said to be a variety of Sinapis; this is the first specimen known in the North of England. In the middle of July Adippe and Hyperanthus were out in the woods at Grange; and in the middle of August Blandina was in plenty under Whitbarrow, Ægeria and Rhamni not rare. I see Photedes captiuncula is noted as a new locality at Whitbarrow; in 1864 I took ninety-six specimens one afternoon, at Whitbarrow, and recorded it at the time.—*J. B. Hodgkinson.*

Pieris Daplidice at Dover.—A specimen of Daplidice was taken near here about a fortnight ago, by some young gentlemen staying at Dover.—*E. White;* 11, *Clarendon Place, Folkestone Road, Dover.*

Pieris Daplidice at Brighton.—Mr. Swaysland, the well-known naturalist of Brighton, informs me of the capture of a specimen of Pieris Daplidice. One day, towards the end of August, a boy passed his shop with a butterfly in a net, alive, which he said was "only a white 'un." Mr. Swaysland, however, detected its species, and purchased it for a small sum.—*Edward Newman.*

Pieris Daplidice near Brighton.—A large female specimen of P. Daplidice was caught at Bevingdean, near Brighton, on the 27th of August last. The insect is in my possession; it is in good condition, with the exception of a slight chip on the hind margin of one of the fore wings.—*H. Goss;* 8, *Goldsmid Road, Brighton, September* 16, 1871.

Sphinx Convolvuli near Droylsden.—I have a female specimen of this species in fair condition, full 4¾ inches in expanse, taken on the 16th of August, by a labourer, on the railway slope near Droylsden Station.—*John S. White; Droylsden Lane, Droylsden, near Manchester, August* 21, 1871.

Chœrocampa Celerio at Southport.—A specimen was caught at Southport on the 17th of July, and was sent to me. It is perfect, with the exception of one of the fore wings, which is broken at the tip.—*E. Bell; 'Science Gossip,' September* 1, 1871.

Deiopeia pulchella near Scarborough.—On Monday last, the 11th of September, on Raincliff Moors, I took a very beautiful little moth; and, after very careful inspection, we find that it most precisely agrees with the description and figure of Deiopeia pulchella in your book. It rose at my feet from heather, and flew very slowly. Time, a little after 10 A. M.—*Richard Beck; Oliver's Mount School, Scarborough, September* 14, 1871.

Deiopeia pulchella at Middleton.—I have in my possession a very fine female in good condition of this very rare insect, captured on the 8th of September, in the railway canal-yard, Middleton Station, by one of the workmen employed, who boxed it for mere curiosity, being attracted by its beauty.—*John Thorpe; Church Street, Middleton, Manchester, September* 19, 1871.

Deiopeia pulchella at Ipswich.—I have this year been fortunate enough to capture (on the 11th and 12th of September) three specimens of Deiopeia pulchella: one at rest on French marygold, and two others brushed up, by accident, out of a bed of Jacobeas; all three were taken without a net. Their flight was heavy, and very similar to the commoner varieties of footman. This is, I believe, the first capture of the insect in Suffolk.—*C. F. Long; Medical Superintendent, Ipswich Borough Asylum.*

Deiopeia pulchella at Dover.—The gentleman whom I have mentioned as having taken Daplidice, also captured a splendid specimen of Deiopeia pulchella, on the beach here, on the 5th September. I have seen the specimen, and it is really beautiful.—*E. White;* 11, *Clarendon Place, Folkestone Road, Dover.*

Deiopeia pulchella near Brighton.—On Monday last a female specimen of D. pulchella was taken in a stubble field, near the Brighton race-course, and was brought to me alive a few hours afterwards by its fortunate captor. I have had the pleasure of adding this insect to my collection.—*Herbert Goss; September* 16, 1871.

Deiopeia pulchella at Brighton.—On the 10th inst., between Black-rock and the race-course, in a stubble field, I saw a fine specimen of the above rarity taken by a gentleman living at Brighton. No doubt a hedge-stake, or something nearly as bad, would have gone through it, had I not been there. I had the pleasure of pinning it for him. Later in the day, in an adjoining field, I saw another specimen settled on the ground; I disturbed it, however, and it rose, and, there being a very strong wind at the time, it was soon blown out of sight. The wind had been blowing strongly in from the sea all day. I cannot say if this had anything to do with the blown-over theory.—*T. N. Hoey; 8, Staveley Road, Peckham, S.E., September* 11, 1871.

Deiopeia pulchella at Hove and Brighton.—On Monday morning, September 4th, while crossing a stubble field in the parish of Hove, and about three-quarters of a mile from the boundary of the parish of Brighton, I caught a very fine specimen of D. pulchella, so perfect and bright that it could not have been long out. Before killing and setting the insect it was shown to several entomological and other friends. Time of capture, 10.15 A.M. Last evening my friend, Mr. Goss, brought Mr. Gorringe, of Richmond Buildings, to show me a specimen he had taken that afternoon, about 3 o'clock, on the Race Hill. It was alive, but somewhat rubbed.—*T. W. Wonfor; 38, Buckingham Place, Brighton, September* 12, 1871.

Deiopeia pulchella at Brighton.—Mr. Swaysland, of Brighton, informs me that Mr. W. Price, 4, Tranquil Vale, Blackheath, took a splendid pair of Deiopeia pulchella near that town; one on the 11th, and the other on the 12th of September.—*Edward Newman.*

Deiopeia pulchella at Ventnor.—On Saturday (September 2) I had the pleasure of capturing a specimen of Deiopeia pulchella in most perfect condition, on the green in front of Devonshire Terrace, Ventnor.—*J. T. Sarll; Beauvoir House,* 34, *Englefield Road, N.*

Deiopeia pulchella at Lulworth.—I captured two specimens of this insect at Lulworth, on the coast of Dorsetshire, on the 11th September.—*A. F. Buxton; Stanstead Abbots, Hertfordshire.—'Field.'*

Deiopeia pulchella at Swanage.—It may be interesting to you to know that I took a fine specimen of Deiopeia pulchella on September 1st, flying in the sunshine, in a meadow near Swanage, Dorsetshire.—*H. Stafford Gustard; Newport, Monmouthshire, September* 2, 1871.

Deiopeia pulchella at Plymouth.—This morning I captured a fine specimen of the crimson-speckled footman, Deiopeia pulchella. On entering my garden, not thinking of insects, I observed an apparently white moth, as the markings were not to be seen, start rather wildly from a plant of the Heliotrope, and, after flying somewhat swiftly for about twenty yards, alight on the flowers of another plant of the same species, passing by all the other flowers in its way. At first sight it looked like a small white butterfly, but from something in its manner of flight and general appearance, I at once saw it must be different; then, approaching cautiously, I, at a glance, detected what it was, rushed into the house for my net, and captured it. I afterwards took it alive to Mr. G. C. Bignell, who killed it, and is going to set it for me. When settled on a plant it looked very long and narrow, with its wings, I think, curled round the body, giving it much the appearance of a large grass-moth. From what I could observe of its habits in so short a time, I think it prefers the flowers of the Heliotrope to those of any other garden-plant, and is a rather wild or wary species.—*J. Gatcombe; 8, Lower Durnford Street, Stonehouse, Plymouth; September* 8, 1871.

Deiopeia pulchella in Cornwall.—I have had the good luck, yesterday (September 14th), to obtain two specimens of Deiopeia pulchella, one of which I captured, and two others were taken by a young gentleman here; the place of capture was a potato-field, in which the potato-stalks are all dried up, but there is a dense mass of Convolvulus arvensis and chickweed. I should suppose that either the Convolvulus or the chickweed is the food-plant.—*Stephen Clogg; East Looe, September* 15, 1871.

Deiopeia pulchella near Bristol.—I have much pleasure in recording the capture of a fine male specimen of Deiopeia pulchella, on the 10th of September. It was taken by my mother (an old entomologist) in a garden, at Bishopston, near Bristol. It is in very good condition, although taken much later in the year than the date you assign for it in your book on moths.—*J. B. Jarvis; Hill Cottage, Brixton Hill, September* 20, 1871.

Deiopeia pulchella in Monmouthshire.—Since writing to you last I have taken another specimen of Deiopeia pulchella in Monmouthshire; it was flying in the sunshine.—*Stafford Gustard; Monmouth.*

Callimorpha Hera near Exeter.—An event of so unusual occurrence as a visit of C. Hera deserves to be recorded. On the 14th inst., about 9 P.M., when taking my usual evening round to my sugared trees and plants, my attention was suddenly arrested by the sight of something brightly coloured, like a bright purple and yellow-striped petal of a tulip, lying flat on a sugared corymb of Tanacetum vulgare; and, bringing my bull's-eye to bear upon it, it suddenly, to my dismay, moved and took wing: in an instant, however, my net was ready, and the beautiful creature became my prisoner.—*H. D'Orville; Alphington, August* 16, 1871.—*E. M. M.*

[Mr. J. J. Reeve (Zool. 4953) records the capture of a specimen of Hera at Brighton, on the 5th September, 1855. It is now in the cabinet of that eminent entomologist, Mr. Henry Cooke, of Brighton; and Mr. Wonfor records (Entom. iv. 213) the capture of a specimen at Brighton, in the autumn of 1868. Several other captures have been mentioned; but we have now three well-authenticated instances.—*Edward Newman.*]

Nemoria viridata.—I have been in the habit of taking this species for the last twenty years; and, in reading your article upon it, I find some slight errors, which it is as well to notice: the larva sent on was reared from the egg, and was one of ten eggs laid by a female taken at the end of May, at Witherslack, Westmoreland; I fed the young larvæ on osier; they readily took to it. As the other nine larvæ all did well, and are now in the pupa, I may as well add that osier cannot be the food-plant of Viridata, as there is no osier where the moth occurs. There is no doubt but the Myrica Gale (the sweet gale) is what the larvæ feed upon. I took twenty-four specimens one day flying during the hot sunshine: there was a high wind up, and it blew several of the moths away into a plantation, but they would not stay in, but came right out into the open heath again. Many specimens are fine as bred, and they partake of both your descriptions, and cannot be two species: the abdomen of the males is tipped with ochreous, females not; the males are more falcate than the females, but in both the costa are concolorous: this species is much rarer than formerly; I seldom get over a dozen in a season; formerly twenty dozen was the number. I once took two fine yellow varieties.—*J. B. Hodgkinson.*

Variety of Venilia maculata.—On the 21st of June last, during a ramble in the New Forest, I took a variety of this insect. It is well known how much the spots on the wings of this species differ both in size and intensity of colouring, but in the variety above-mentioned the peculiarity was quite discernible whilst the insect was on the wing. The two usual spots nearest the base of the wing, and those next to them toward the outer margin, form a band across the fore wing; also the spots on the hind wings are larger and darker than most of the other specimens in my series. I have never yet been fortunate enough to meet with the variety without the dark markings.—*G. Bentley Corbin.*

Sterrha sacraria at Shirley.—I had the pleasure of capturing a fine male of this species, at Shirley, in Surrey, on the 10th inst. It flew in the sunshine, when disturbed, much resembling a Crambite in its flight and manner of sitting on the grass-stems, &c.—*W. E. Davis.*

Acidalia rusticata.—One specimen, evidently this insect, was taken here this month. Another specimen in my collection was probably also captured here.—*H. A. Evans; Tutshill Lodge, Chepstow.*

Acidalia emutaria in the New Forest.—During the summer of 1870 I took two specimens—one in tolerable condition, the other worn—of this delicate little species, in the forest. In my excursions to the forest this season I have not seen it, neither have I heard of any being taken.—*G. Bentley Corbin.*

Acidalia prataria.—You will perhaps like to know that four imagos of Acidalia strigilata (prataria) emerged on Thursday, the 13th July; and others have appeared every day since that date.—*J P. Barrett; 33, Radnor Street, Peckham, July* 19, 1871.

Halia wavaria.—The larvæ found on the black currant were all of a medium grass-green colour, but, on moulting for the last time, the colour was changed to a light reddish brown, the yellow markings appearing darker in tint than they were before. The pupation was under ground, instead of being in a "slight web attached to some of the leaves," as some authors mention. The first of the moths emerged on July 21st.—*George Sim; Crail, N.B.*

Stauropus Fagi at Ipswich.—Last June a very fine and perfect male S. Fagi was taken at rest on a tree in a wood near here, and it is now in my possession.—*Edward*

F. Bisshopp; Berners Street, Ipswich, September 2, 1871.

Stauropus Fagi in Gloucestershire.—In your last month's number (Entom. v. 320), your correspondent, Mr. Merrin, says he believes that S. Fagi is new to the Gloucester district. I took it fifteen years since in the Beech Wood, near Newnham, Gloucestershire, the only county I ever made a capture in: they were resting upon the trunks of the large beech. I consider the Forest of Dean the best collecting district anywhere between the Speech House and Lydney; there are endless varieties, and generally plentiful. In this district there is nothing doing, in consequence of the continual rain. Myrtilli would be plentiful could we only have a day's sun; but when the weather is so bad the specimens captured are generally in very bad condition.—*S. Bradbury; Cheadle, Staffordshire, July* 15, 1871.

Acronycta Alni, Sphinx Convolvuli, and Deilephila Galii.—Last week my son Harry found a larva of Acronycta Alni close to my house, at Huyton; the same evening it made up amongst some pupæ of A. caja I had in the same breeding-cage. The next day Percy Capper found another, which has also made up in the same way. We have searched well but can find no more. I do not know that either the larva or moth has ever before been recorded in this locality. A working man brought me also a fine specimen of Sphinx Convolvuli, taken in the neighbourhood. I have bred a dozen fine specimens of D. Galii this season; I took the larvæ last year on the sand-hills at New Brighton.—*Samuel James Capper; Huyton Park, near Liverpool, Aug.* 29, 1871.

Leucania albipuncta near Canterbury.—At a quarter past one on Wednesday morning I captured a fine specimen of Leucania albipuncta at sugar, to all appearance fresh from the pupa.—*George Parry; Church Street, St. Paul's, Canterbury, August* 16, 1871.

Leucania albipuncta at Canterbury.—Since I wrote you last I have had the good fortune to take three more L. albipuncta; one on Friday night and two on Saturday night, August 18th and 19th; and, strange to say, neither of them was taken till past midnight. I have shown them alive to two gentlemen entomologists here; and one I have sent to Mr. Harper alive.—*Id.*

Leucania albipuncta.—I have sent you a specimen of L. albipuncta alive, if you think it worth accepting, taken last night (September 4th), in Blean Wood, which makes ten specimens since August 20th, and nearly all in fine condition. —*G. Parry; Church Street, St. Paul's, Canterbury, September* 5, 1871.

Leucania putrescens, &c., at Teignmouth.—Since I last wrote I have taken six specimens of Leucania putrescens, and one each of Agrotis obelisca and Stilbia anomala. Nothing will come to sugar this season.—*Arthur. W. Callender;* 15, *Powderham Terrace, Teignmouth, August* 29, 1871.

Heliothis armiger at Liskeard.—Heliothis armiger was taken here last week.—*Stephen Clogg; East Looe, Liskeard, September* 26, 1871.

Catocala Fraxini at Cosham.—I have taken this month, at sugar, a splendid specimen of Catocala Fraxini. It is much larger than the one you have figured in your 'British Moths.'—*George Taylor; Bloomfield House, near Cosham, Hants, September* 26, 1871.

Catocala Fraxini.—I captured a very fine specimen of the Clifden nonpareil (Catocala Fraxini) in the Zoological Gardens last Tuesday, September 12, about eight in the morning. It was resting on the trunk of a beech tree, about six feet from the ground.—*Arthur Thompson; September* 15, 1871. —*'Field.'*

Profusion of Mamestra Persicariæ.—I don't know whether it is the same elsewhere, but about this part of London there is an extraordinary, and I think unusual, abundance of the larvæ of Mamestra Persicariæ. There is at the back of a row of houses, in which our own is situated, a field enclosed on all sides by walls. On one side of this, against the wall separating the gardens of a street at the back of Camden Road from the field, there has gradually, during the last three years, sprung up an accumulation of wild plants, such as Chenopodium, burdock, dock, thistles, &c., and amongst these every year the larvæ have occurred in small numbers, but I have never had more than half a dozen at once. This year, however, the numbers of the larvæ are really extraordinary: they swarm on almost all the plants, but especially on burdock, Chenopodium, and another plant which, I think, is

Atriplex. They are also very common in our own garden; off one gooseberry-bush I took above three dozen full-fed ones. I have taken altogether over two hundred, and might have numbers more if I searched for them, for every evening that I have done so I have taken them in numbers varying from twelve to sixty. I notice that all those on the gooseberry, the leaves of which are turning brown, were of the brown variety; whilst those on a hollyhock, close to it, were nearly all green. I have also remarked a fact which I do not recollect having seen noticed anywhere; it is that their posture, when at rest, very often resembles that of the larva of Notodonta ziczac, the head and 5th segment being held quite clear of the food-plant, though I have not seen the anal claspers unattached. All my entomological friends and acquaintances about here have taken the larvæ in greater or less abundance, though none have seen so many as myself. Their abundance in the field is probably owing to the fact that most of the gardens in the houses in Camden Road have lime trees in them, the flowers of which tree I have noticed are a great attraction to the imagos; so that they have been attracted there, and then laid their eggs on the plants. This autumn I have also taken, when searching for these larvæ at night, four specimens of Hydræcia micacea, which I have not seen here since 1867. Yesterday evening I took a pair *in copula* on the flowers of dock; the female is a magnificent specimen. In my former communication respecting my New Forest captures, I should have stated that the larva of A. Alni was taken on August 10th, in a wood, near Foxleaze.—*Bernard Lockyer; 179, Camden Road, London, N.W., September* 5, 1871.

Xylina conformis.—I have had the pleasure (this day, August 5th) of breeding two splendid specimens of conformis. Eggs were generously sent me by a friend, in the spring: eighteen larvæ resulted. Of these, one died; one I sent to a friend; and the remaining sixteen I was fortunate enough to bring to the pupal state. I hope to make some further remarks on a future occasion.—[*Rev.*] *J. Greene; Apsley Road, Redland, Bristol.*

Dianthœcia irregularis and Acidalia rubricata.—D. irregularis has turned out a complete failure: I have only one, and the Rev. J. Mills only one, turned out of over 100 caterpillars. A caterpillar of A. rubricata has just died full fed.—[*Rev.*] *A. H. Wratislaw; School Hall, Bury St. Edmunds, July* 4, 1871.

Xanthia gilvago, &c., at Epping.—I caught a very fine female Xanthia gilvago at sugar, on one of the lime trees, last night. I was surprised to see it, as I do not think this species has occurred before in the neighbourhood of London. It is rather curious that I also took all the other British Xanthias, except aurago, *viz.*, ferruginea, Silago, Citrago, Cerago, and the pale variety (the Gilvago of Haworth). A. lunosa swarmed, but, as usual, not one male in twenty was in good condition; the tips of the wings appear to be worn as soon as they fly. The females are very scarce. I have only seen seven; five of these I have in boxes to obtain some eggs, if they will deposit them. I took one remarkable female last night: it is very large, and the upper wings are very deep red-brown, with scarcely any markings, except a marginal row of black spots. *Postscript.*—Since I wrote to you I have taken another fine specimen of Gilvago; a male. The first is a female. I also took Calocampa vetusta and a very fine Aplecta occulta. It must be about twenty-five years since I took two specimens of this moth; the one I caught is a female, and I have kept it alive to see if it will deposit any eggs. I have not seen vetusta before for years.—*Henry Doubleday* (*in a letter to E. Newman, dated September* 13, 1871); *Epping.*

[Xanthia gilvago has also turned up at Hoddesdon, where fifteen specimens have been taken by Mr. Horley, and others.—*Edward Newman.*]

Dianthœcia irregularis, Anticlea sinuata, &c.—I do not know whether you have been informed that Mr. Powles, of Ipswich, took two D. irregularis sheltering on pines in the crevices of the bark, in July last. Irregularis caterpillars have not been so numerous as usual; and at Tuddenham, in the usual localities, were scarcely to be found. I have taken only one caterpillar of Heliothis dipsaceus, of which moth Rev. J. Mills and I both reared several specimens from caterpillars taken last year. Mine were all *seed-feeders,* and were fed along with the larvæ of D. irregularis on the seeds of Silene Otites; but they also ate other seeds. But the great capture of this year, in this neighbourhood, has been that of the caterpillars of Anticlea sinuata, of which above fifty specimens have been taken by different people following my directions. Having had a couple of caterpillars given me by Mr. Browne, of Cambridge, and having subsequently swept three more from Galium verum, I watched them carefully, and found that they never touched the flowers of the plant, but fed entirely on the young seed-vessels and their stalk, as soon as the flower was off. I have had three in my sweeping-net at once from Galium verum in this condition. Why is it that A. sulphuralis, A. rubricata and A. sinuata are almost confined to the sandy districts in Cambridgeshire, Suffolk and Norfolk, their food-plants being of far more general occurrence? I conjecture, in answer to this question, that these larvæ are all feeble, and cannot enter the ground where the soil is hard or stiff; hence their selection of a sandy locality. Has the larva of L. grisearia ever been found in a wild state on Erysimum cheiranthoides? I have seen and taken many on Sisymbrium Sophia.—[*Rev.*] *A. H. Wratislaw; School Hall, Bury St. Edmunds, August* 31, 1871.

Polia nigrocincta.—During the past week I have had the pleasure of taking two fine specimens of this insect from my breeding-box.—*R. Kay; Bury, August* 19, 1871.

Butalis cicadella at Weybridge.—On Saturday, the 1st of July, I caught, I may say accidentally, an example of this exceedingly rare British species, on the heath, near Weybridge Station. I believe specimens have been taken by Mr. S. Stevens, but I know not the locality. The original individual was taken at Brandon, in Suffolk, many years since, by Mr. Dunning.—*R. M'Lachlan; Lewisham, July* 10, 1871.—*E. M. M.*

Acentropus niveus.—I have this season discovered a spot for this small, local, and peculiar insect. Strange to say I had not observed it before, though it is not uncommon on several parts of the river. Has this season been an exceptional one for it in its usual haunts? Its flight is one of the most peculiar with which I am acquainted, as it never seems to leave the surface of the water, but swiftly flutters its tiny wings, and, in the dusk of evening, looks almost as if it was *swimming* about here and there. At such times it is only to be got with a water-net; but in the day-time it will be found settled on the under side of leaves, &c., close to the water's edge, when it can be easily boxed. It is truly a *water* insect, as often only its head is above the surface, and when placed in a pill-box soon dies. These facts may be well known to the majority of the readers of the 'Entomologist,' but they will possibly interest a few who are unacquainted with an insect whose position in our list of Lepidoptera has more than once been changed, and whose claim even to the order of Lepidoptera has been disputed.—*G. Bentley Corbin.*

Lepidoptera at Wimbledon Common; June 7, 1871.—I have gone out insect-hunting on unfavourable days in June, yet scarcely remember one to equal the above-named day, when my evil genius led me to the Common, which, despite the Volunteers, is still one of the best spots for insects within a moderate distance of London. The wind fluctuated from north to east, and from east to north; and animal and vegetable life were alike suffering under the continued unfavourable influences. On, or nearly about, this date, I have seen flying, pretty freely, porata, punctata, petraria, clathrata, maculata, strigillaria, pusaria, lactearia, and other Geometræ, which are partial to the underwood which grows in the ravines or hollows. What moths, however, were about at this time kept themselves so closely concealed that they were not to be dislodged even by blows of the beating-stick; and an examination of a long stretch of fence in and about the park produced no Macros, but only a few Tineæ of the commonest species. Larvæ, as far as could be told in a hasty examination, were as scarce as imagos; and, unquestionably, numbers have been destroyed by the chill days and colder nights we have had in May and June. Yponomeuta padella was plentiful, as usual, on the hedges, though backward in its growth. I received a renewed proof of the fact, that in cold weather the ravages committed by larvæ upon the foliage of plants are far more injurious than when the temperature is higher. The hawthorn, in various places, presented a miserable appearance where these larvæ were feeding, not entirely to be explained as being the immediate effect of their jaws, but produced, as I conceive, secondarily, because the vitality of the plant languished under the uncongenial influence of the weather.—*J. R. S. Clifford; 59, Robert Street, Chelsea.*

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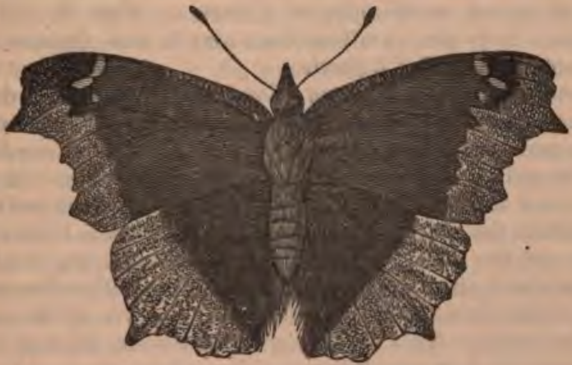
Answers to Correspondents.



VANESSA ANTIOPA (*var.*).

Variety of Vanessa Antiopa.—I beg to offer you an extraordinary specimen of Vanessa Antiopa, thinking you would like to figure it in the 'Entomologist.'—*George Hoadley King; 190, Great Portland Street.*

In this beautiful variety of the well-known Antiopa, or white-bordered butterfly, the white border is remarkably broad, and its limits are very indistinctly defined, and scarcely perceptible at the apical angle of the fore wing: it is irrorated with black, and in the hind wings it assumes an entirely different form, the dark and light portions of the wing uniting in an oblique but direct line: the usual series of blue spots within this pale border is entirely wanting, as is the inner of the pale costal spots, so conspicuous in ordinary specimens.

Liparis dispar in Essex.—I believe most entomologists will be interested in the statement as to the occurrence of this species at large in the Essex marshes. The only other recent captures have taken place in the North of England and in Scotland, as recorded in the 'Entomologist;' and in each case only one was seen. If Mr. Button can communicate any further particulars as to the habits of the species, I trust he will do so. I presume that the individuals occurring there are of the typical form, and not the dwarf and dark variety common amongst breeders. Unquestionably the species was once pretty common in many places in Britain; and it is not, seemingly, a delicate species nor a dainty feeder. It is not at all evident why it has almost become extinct.—*J. R. S. Clifford.*

Young Larvæ of Zeuzera Æsculi.—I have never been able to rear these in confinement, nor do I suppose others have been more successful. On one occasion I had an opportunity of observing the hatching of a patch of eggs deposited on a pear-tree. These I noticed particularly did not at once penetrate the wood, but fed for several weeks between the bark and the wood. Unfortunately the loose piece of bark, under which they were living, was accidentally wrenched off, and heavy rain coming soon after, the young larvæ were washed away. This is only a solitary instance, and it might be assumed that something peculiar about the wood of this tree prevented them from at once penetrating it; so I would hardly venture to assert that it is the habit of the larvæ to feed at first in that manner, until it gains strength and size; yet, for all that, it is not improbable.—*J. R. S. Clifford.*

Halias wavaria.—Your correspondent, Mr. G. Sim (Entom. No. 96, p. 416), appears to consider it an unusual occurrence for the larvæ of H. wavaria to undergo pupation under ground. I have had, at various times, great numbers of the larvæ of this moth, and have invariably found that they turn to pupæ under ground, but without forming a cocoon; and, although I have searched for the pupa above ground out of doors in our garden (where, this spring, I captured twelve dozen larvæ in one afternoon), I have never yet succeeded in finding it, and so conclude that it has the same habits at liberty as those it has in captivity. This species appears to be very prolific. As mentioned above, I took, this year, great numbers of larvæ off gooseberry and currant. After that our gardener destroyed many dozens more; and I suppose that numbers must have perished by other means; yet, nevertheless, the moths were common, and I observed them continuously from about June 20th to the end of August. (I hope no one will accuse me of helping to exterminate the species, for I must mention that I took as many larvæ as I had room for, to save them from death at the hands of the gardener above mentioned, and set at liberty all the moths I did not require for my own series. The larvæ proved much infested with ichneumons.) The curious part of the matter was, that the larvæ were almost exclusively attached to two gooseberry-bushes, which are trained against the wall of the house, and grow out of the gravel-walk, so that it must be, I should think, a difficult matter for them to bury. These two bushes they entirely defoliated. There are several other gooseberry- and currant-bushes in our garden, but there were comparatively few larvæ on them.—*B. Lockyer;* 179, *Camden Road*, *London*, *N. W.*, *October* 5, 1871.

Moths and Sugar.—With reference to Mr. G. B. Corbin's communication as to "moths and sugar," I may state that at one time I was in the habit of sugaring every fine evening throughout the summer, in the woods, near here. I have often kept females, captured by this means, in order to obtain eggs, and have seldom found difficulty in obtaining them. In fact, I have generally found that if the insect was left in a pill-box for one evening eggs would be deposited. As to the eggs when laid not producing larvæ, I have, at this time, part of a large brood of young larvæ of Noctua festiva, produced from eggs laid by two or three females of that species, captured by me at the end of last June, at sugar. And, besides these, I have, at various times, obtained eggs of several other common Noctuæ, taken at sugar, all of which have hatched in due course.—*B. Lockyer.*

Chelonia caja.—I had about two hundred eggs of C. caja (from the same moth), which hatched about the end of July. I am sorry I did not keep the exact date. They were all fed on the same plant (dock), but I soon found about fifty grew much faster than the others; these have continued increasing in size, and some have begun to spin. If it is of any interest to you, I will let you know if the chrysalids change this year.—*Miss E. Bethell;* 54, *High Street*, *Croydon*, *September* 11, 1871.

I am much interested in this subject, and shall greatly value farther details. Please, therefore, inform the readers of the 'Entomologist' when the moths come out.

Thomas Parmiter.—I regret my inability to make out the name of the moth you have so minutely described. Could you trust it to some safe hand when you are sending to London?

Larva of Phibalapteryx aquata.—M. Berce has discovered, in the Forest of Fontainebleau, the previously unknown larva of this very interesting geometer. He has succeeded in rearing it, and has thus obtained specimens in the highest state of perfection. It feeds on Clematis Vitalba, and not on Juniperus communis, as was supposed: it is found in May and July, and may be looked for in England.

Eyes of Insects.—Dr. Pouchet, residing at No. 1, rue Hautefeuille, Paris, is desirous of comparing the highly-developed eyes of certain insects with those of insects having simpler eyes, while they are merely in a rudimentary state; and he will be obliged for living specimens of blind insects, remitted by post in damp moss, together with information respecting the places they inhabit.

Moths and Sugar.—Under the heading of "moths and sugar" your correspondent asks certain questions, to which you invite a reply from either of your correspondents, the Rev. J. Greene or Mr. Doubleday. As I had taken pen in hand without noticing your *special* invitation, I venture still to give my opinion and experience. 1st.—As to the greater frequency of *males* than *females* at sugar. Allow for the generally somewhat later date of emergence of the latter sex, and I am of opinion that of many species there will not be much difference in the number of captures of the two sexes. The greater sluggishness or (to be more polite) inactivity, and the domestic duties of the females of some species, will account for their discrepancy in numbers at those convivial gatherings, at which the males assemble in such force. The letter of Mr. Doubleday to yourself, contained in the same number, indirectly answers the latter question as to eggs. I can attest to the same fact, having frequently obtained eggs, and hatched larvæ from the same, from moths captured at sugar.—[*Rev.*] *E. H. Eyles; Enfield, October* 6, 1871.

Caterpillar of Goat Moth.—A boy has just brought me a caterpillar of the goat moth; and neither in the 'Entomologist' nor in your book on moths can I ascertain *the exact* treatment. Last year I had two, which I put under a bell-glass with some pieces of willow; but they both died. I should, therefore, esteem it a great favour if you would kindly inform me how I shall be best able to preserve it.—*Arthur du Moulin; Rusina Villa, Leamington, October* 3, 1871.

The bough or block in which the larva is feeding should be sawn off and covered with muslin. If you then leave the block alone until next June the moth will come out, and the muslin will prevent its escape.

Slug Larva of the Pear.—The enclosed "slimy grubs," larvæ of insects I do not recognize, have been sent me for information. They have suddenly appeared on some pear-trees, and are doing great harm; they eat off the green surface of the leaves, allowing the lower cuticle to remain intact. Can you inform me their name and the perfect insect?—*Egbert D. Hamel; Bole Hall, Tamworth, August* 21, 1871.

It is the larva of a sawfly of the genus Blennocampa, and has been most injurious to the pear-trees in the south of England during the present summer. My friend Mr. Birchall, and several other correspondents who have sent these slimy grubs, will kindly accept this answer.

Variety of Polyodon.—On the 29th July, in the evening, I captured, in the waiting-room at Willesden Junction, a very dark specimen of Polyodon. The upper wings are very dark brown, nearly black; but the usual W is very distinctly marked. Is this dark variety at all common near London?—*William Wells, jun.;* 12, *Phillimore Terrace, Kensington, August* 29, 1871.

I have never seen one of the dark specimens taken near London.

Variety of Zygæna Filipendulæ.—I paid a visit to Caterham Junction the first week in this month (August), and found Filipendulæ in great abundance there. Among the many I took one male, in which the spots on the fore wings and the under wings are of a bright yellow, instead of the normal crimson colour. Is this abnormity at all rare?—*W. Wells, jun.;* 12, *Phillimore Terrace, Kensington.*

This variety is by no means very uncommon, but I have never taken a specimen, and should much value it.

Chelifer cancroides.—By this post I forward you a singular little animal, which I found clinging to a common house-fly. Whether it had fixed itself to the body or legs of the fly I am unable to say, as it dropped off before I could notice. Can you tell me its name, or any of its habits? I never recollect seeing it before.—*Edward F. Bisshopp; Berners Street, Ipswich, September* 4, 1871.

The little animal is Chelifer cancroides.

Gall on the Poplar.—The swelling on the leaf-stalk of the poplar, sent me by Mr. E. A. Fitch, is caused by a plant-louse, Aphis bursaria; if it is opened the interior will be found to be nearly filled with these insects. These monstrosities are very common just now.

Argulus foliaceus.—The fish parasite, sent by Mr. Fitch, is Argulus foliaceus, already figured at p. 351 of the 'Entomologist.' Mr. Fitch has observed that gold-fish dash about to avoid their attacks, and that when the Argulus has once fixed itself they immediately sicken, and eventually die.

Gall in the Bramble.—Mr. Walker has seen the bramble-gall, sent by Mr. E. A. Fitch; and the insect which has emerged he pronounces to be parasitic, and of the genus Eurytoma. I am unable to give you the name of the gall-maker, but hope to ascertain.

Cocoon of Orgyia antiqua.—The mass of eggs, sent by Mr. Wrench, is laid by the apterous female of Orgyia antiqua (the vapourer moth), which, after leaving the chrysalis, crawls on the outside of the cocoon, receives impregnation, and lays its eggs in this regular manner. After which it perishes, I believe, never leaving the exterior of the cocoon.

Orgyia pudibunda.—On the 24th of May last I took a female pudibunda: she deposited a large number of eggs, which were good hatchers. On the 16th of August they spun up: and on the 26th of same month the perfect insect made its appearance; and since then about a dozen have come out. I don't know whether this is a common occurrence; but the books say the following May, after spinning, is the time to expect it.—*E. Earl; Newcastle, Staffordshire, September* 25, 1871.

I have not met with such an instance. Will correspondents kindly favour me with their experience?

Fungus on Pear-trees.—The curious malady which is described as injuring the pear-trees at Saffron Walden is the result of a parasitic fungus, named Rœstelia cancellata. The Rev. M. J. Berkeley, to whom the question has been referred, recommends picking off the infected leaves and burning them,—a slow and most wearisome process; but I know of none better or so effectual. I have this year received specimens of the same genus of fungus on the twigs, leaves and fruit of the whitethorn; on the leaves and fruit of the medlar; and on the fruit of the mountain ash. A valued correspondent has remarked, that the ravages of this genus of Fungi seem confined to Rosaceous plants. I am well aware that this subject does not strictly come within the scope of the 'Entomologist,' but the specimens having been sent me under the impression that they were the work of an insect, I could not hesitate to notice them. The effect of this parasite on the whitethorn is very curious: it causes the twigs to swell and curve, and assume the appearance of the larvæ of Lepidoptera and other objects. It is difficult to conceive any growth more grotesque than some of these fungus-galls, which I gathered this year in the neighbourhood of Croydon.

Squirrels eating the Woody galls of the Oak.—Mr. H. B. Murray informs the readers of the 'Field' that the galls in question—which are produced by Cynips lignicola, as I pointed out many years ago in the 'Zoologist'—are opened by squirrels, and not by titmice, as I always supposed. He says:—"I have myself seen the ground under the oak-tree strewn with the fragments of these galls, and there could be no doubt of squirrels being the operators, as they were seen in the act." It would have been rather more satisfactory had Mr. Murray been able to write that he *himself had seen* the squirrels eating these galls, instead of saying "*they were seen*" in the act; the expression has a want of precision that the writer might possibly be able to remove. I rather infer that he has not himself seen them. I have examined most critically hundreds of these galls at Croham Hurst, near Croydon, with the express object of ascertaining what creature really did attack them; and although there are evident marks, as of the beak of a bird, in many of them, and symptoms of having been forced or broken open in others, there certainly was no indication of a rodent having been at work in a single instance. It is true that, at the time this searching investigation was made, I had neither read nor heard of the squirrel being supposed to feed on these galls; my object being to discover whether they formed any portion of the food of the field-mice, which abound in that locality; but not the slightest trace of the teeth of a mouse could be found.

Larvæ of a Eupithecia.—I send you by this post some caterpillars I found on the seeds of umbelliferous plants, and shall be glad to know their name.—*William Talbot; Tarbert, October* 3, 1871.

The larvæ are those of Eupithecia absynthiata, so far as I can make out; but they will not come out until next year.

Larva of Odontopera bidentata.—I send you a larva, which my nephew found attached by its anal claspers to a branch of one of the forms of Rubus cæsius. I took it to be one of the Boarmidæ; but, upon referring to your 'Moths,' I could not find any description exactly agreeing with it. You will observe that it is a capital imitation of a piece of stick, about the size of a tobacco-pipe, and two inches in length; it also has the appearance of being covered with lichens, resembling some growths of Parmelia pulverulenta, intermixed with Pertusaria, and variegated with darker markings.—*Henry Reeks; East Woodhay, Newbury, October* 3, 1871.

The larva is that of Odontopera bidentata: this beautiful variety, so totally different from the ordinary form, is said to be generally found on lichens. It is singular that the larvæ of this species should feed all the summer the moths appear, and I have some of them feeding up to the present time on clematis and lilac: most of them are now gone into the earth.—*H. Doubleday; in a letter to E. Newman.*

EDWARD NEWMAN.

Life-history of Gymnancycla canella.—The egg is laid in July and August, on the flower-bud of Salsola Kali; and the young larva emerges in confinement in about eight days. Whilst young it enters the unripe seed-vessels, and feeds upon the seeds; but when the capsule becomes too small for its dwelling, it bores into the stem of the plant, feeding on the soft interior, the entrance to which it covers with a close net-work of silk, where it ejects its frass. It leaves the hollow of the stem at times to feed upon the seeds of the plant, but wriggles back into it on the least alarm. When full fed it is about eight lines long; rather attenuated; head and 2nd segment small; 3rd segment stoutest of all: from this it tapers gradually to the anal extremity. The skin is in loose folds along the spiracles; crown of the head pale brown; cheeks black; body light green above, paler beneath; dorsal line darker, distinct; subdorsal lines broad, dark green, sometimes reddish brown. On the 3rd and 12th segments are two distinct ocellated spots, black with a white centre, from each of which grows a stiff bristle; also on each segment are several minute black dots. The larva spins for itself under ground a close cylindrical silken cocoon, mingled with grains of sand; and in this it changes to a pale delicate-looking pupa. The imago does not emerge until July, thus remaining in the pupa state nearly ten months. I have never taken the imago on the wing, but the larva is not rare at times on the Salsola in this district, and its presence, when young, may be easily detected by the withered appearance of the tops of the stems, and, when more mature, by the small webs full of frass and sand. The early part of September is the best time to search for it, and I have no doubt that it will eventually be found wherever its food-plant abounds. *N.B.*—The collector, if thin-skinned, should be armed with a pair of scissors or strong gloves, as the armature of the leaves makes painful punctures. To non-botanists I would say the Salsola resembles most a furze-bush growing out of the bare sand.—*Henry Moncreaff; September* 21, 1871.

Notes on Oak-apples.—The plan of creation requires a continual appearance and disappearance of material existence. Each form of life is from dust; and having performed its part, or completed its circle, returns to dust, which is again gathered up into new creatures; and these numberless and ever-varying circles constitute the great round of existence, and the whole work is preserved in order by the control which the parts exercise upon each other. The oak-leaf falls and returns to dust, which serves for the growth of the oak, and, in process of time, is developed again into leaves. In other cases the circle of existence is less simple, and two circles of life are combined; and some part of the substance of the oak-leaf is transformed into oak-spangles by means of a gall-fly. In the oak-currant the circle is more complicated, for not only gall-flies, but also parasitic flies take part in the work. In the oak-apple the arrangement is far more intricate, for very numerous kinds, perhaps one hundred in number, representing all the chief orders of insects, are occupied in it; and it is not only inhabited by insects, but is also frequented by Acari or mites, whose chief dwelling-place is wood-moss, where the species of Bryobia, Zetes, Tydeus, Iphis, Murcia, Nothrus, Oribates, Pelops, Penthaleus, Hoplophora, Eumæus, Erymæus, Caligonus, Carabodes, Celæno, Cepheus, and the more elegant Eupodes and Linopodes abound; and British Entomology is in need of a book on these wood-moss mites; and oak-apples afford abundant materials for another volume. Teras terminalis, by means of its punctures and egg-laying, is the means of forming the oak-apple, which supplies its offspring with board and lodging; but numerous enemies appropriate to themselves the bodies, or the food and habitation, of this offspring; and other kinds avenge the Aborigines by consuming their invaders. Some kinds inhabit the oak-apple for two months; one species lives a year in it; and the successive generations of this fly pass from oak-apple to oak-apple. But the life-history of the other kinds requires to be traced for ten months elsewhere. Each oak-apple is tenanted by many individuals of the Teras, and there is much to be observed as to how the grubs are distributed through the oak-apple during its growth, and in noticing the successive arrival of other species, which find their way into the oak-apple, or insert their eggs therein. In conclusion I will mention two or three oak-apple insects, in addition to those which I have previously noticed. Lampronota Segmentator:—this is probably a parasite of Pœcilochroma corticana (Fam. Tortricidæ), a moth that frequently emerges from oak-apples. Psylla ——: —I have not yet ascertained the name of this species; it has a very close resemblance to P. Buxi. Anthomyia pluvialis:—another species of this genus, A. canicularis, has been reared from the cottony oak-gall, the habitation of Aridricus Ramuli.

Eulophus Gallarum is frequent in these two galls.—*Francis Walker.*

Number of Claspers in young Noctua Larvæ.—In No. 56 of the 'Entomologist's Monthly Magazine' (for January, 1869), Dr. F. B. White records some notes made by him on various Scotch Lepidoptera. It is respecting the first note, regarding the larva of C. exoleta, that I now write. Dr. White remarks, that in rearing this larva from the egg he was surprised to find that, when first hatched, it only possessed three pairs of prolegs [I believe the writer meant claspers], the first two pairs being undeveloped. He also says that he is not aware of any other Noctua larva having the same peculiarity. On reading this note, some two years ago, I was struck with an idea, which I have since devoted some time to working out; and, feeling myself pretty certain as to the facts of the case, I venture to give the results of my experience. They are as follows:—most, if not all, of the larvæ of the Noctuæ belonging to the section Genuinæ have, when first hatched, but three pairs of claspers, the first two pairs being quite undeveloped; they are gradually developed as the larvæ increase in size, and by the third moult they are as large as the other pairs, and fit to be used in walking. Consequently, when first hatched, the larvæ are semi-geometriform, and loop more or less when in motion. To show that I have some grounds for the above opinion, I annex a list of the Noctuæ belonging to this section, which I have reared, or attempted to rear, from the egg:—Leucanidæ, L. lithargyria; Apamidæ, M. Brassicæ and Persicariæ; Caradrinidæ, G. trilinea; Noctuidæ, R. tenebrosa, N. festiva and brunnea; Orthosidæ, T. gothica; Hadenidæ, E. lucipara, H. serena, A. nebulosa and H. Chenopodii; Xylinidæ, X. lithorhiza (this larva is especially geometriform when young, and has the habit of resting attached only by its claspers, with its body held straight out from the surface on which it is resting, after the manner of true Geometræ). Heliothidæ:—I have never yet had the pleasure of obtaining eggs of any of this family; but my kind friend, Mr. H. Bartlett, of Brecknock Street, Camden Road, this year has had eggs of H. dipsaceus, and this family proves an exception to the rule, for the larvæ were, he informs me, true Noctuæ throughout their lives, and never possessed less than the usual number of claspers. Besides the species abovementioned, I have seen, recently hatched, larvæ of other species of Genuinæ, in the possession of Mr. Bartlett, and they have all shown the same characteristics. If we leave this section, and turn to the second great group of Noctuæ, the Quadrifidæ, we find that the greater part of the larvæ are half-loopers throughout their lives, such as the larvæ of the genera Plusia and Catocala; whereas in the Noctuæ, which are most nearly allied to the Bombycina, the larvæ have always the usual number of claspers, and are also, like the larvæ of Arctia and Chelonia, more or less hairy. The conclusion I draw from these facts is, that Geometræ are, what I think I may term, *undeveloped Noctuæ;* therefore their proper position, instead of being between the Bombyces and Noctuæ, would be somewhere *after* the latter group. Beginning with the Bombyciformes, we find the larvæ having five pairs of claspers, from the egg upwards (T. derasa and batis are, however, exceptions). We then find, in the Genuinæ, larvæ which, on first coming into the world, possess but three pairs of claspers, but which on attaining maturity are possessed of the usual number thereof; and, lastly, in the Minores and Quadrifidæ we have larvæ who are semi-loopers throughout their lives: from these we naturally merge into the true geometers. I merely start this as an hypothesis, and leave it to wiser heads than mine to work out, if they consider it worth while. I should like to have the opinion of some one who has had more experience than I in rearing Noctuæ from the egg; and shall be obliged to any gentleman, who in future may rear any of this family, if he will note whether they possess the characteristics I have mentioned or not.—*B. Lockyer.*

Batoneus Populi: a Mite Injurious to the Aspen in Scotland.—At the end of May last, Mr. George Norman, of Forres, a gentleman well known as an ardent and successful cultivator of Scottish Entomology, kindly sent me a batch of aspen galls, accompanied by a note, that they were growing in vast profusion on Sir A. Gordon Cumming's estate, near Shiel, on the banks of the Findhorn, and that the branches of the aspens were covered with them in all stages of growth. My correspondent also informed me that the aspens were probably of natural growth—quite wild; and, in reply to my inquiry, I learned that none of the galls were seen near to or on the roots. It is the first time that British specimens of these galls have come under my notice, but I have long been acquainted with their occurrence in Bohemia, as detailed by Herr L. Kirchner in the following note, of which I think it serviceable to give a literal translation:—"But the most diversified works I found on the Populus tremula, *L.*, of our woods, at the young shoots of four to five years' growth, amongst which there are, however, individuals nearly twenty years old, and which, from the want of sun continue to vegetate in a crippled state in the thicket of old pine plantations. Most remarkable of all are the gall-like deformations, similar to tuberous growths, which are attached near to the root, and half imbedded in the ground, from the size of a hazel-nut up to that of a man's fist: their outside is of a fine reddish green; their shape and look that of a raspberry (similar deformations are found on the trunk of Populus pyramidalis, perhaps also below, as in this case); their interior full of small cells, nearly one hundred in number, each of which is of the size of a hemp-seed, and is tenanted by ten to fifteen mites in the larval state (Batoneus Populi, *mihi*). Only twice I was so lucky as to catch altogether five old females, which were just busy [laying?]. This gall formation, which is quite peculiar in construction, and which is undoubtedly the work of a mite still undescribed, I have subsequently found on eleven different crippled shoots, always only near the root, fixed to the bark, half above ground, and half imbedded in it." ('Lotos,' xiii. p. 44.) With the description here given of the Bohemian specimens, my own Scotch ones quite agree in every particular,—in size, colour, and internal structure. I was in particular struck by the rich, downy, reddish green hue of their covering; by the loose granulate texture of the outer layer, which could be easily broken up by hand; and by the fibrous, woody, hard centre, around and within which the numerous cells of the mites were located. In my opinion each of these galls springs from a bud, transformed into a short deeply-imbedded foot-stalk, within which the parent mite had deposited her eggs. Hence, I would not lay any stress on the fact, so much insisted upon by Herr Kirchner, that the galls occur only near the roots. On a future occasion I hope to be able to supplement this notice by an account of the development of the makers of these excrescences. In the meantime I wish to direct the attention of foresters and agriculturists to the fact, how injurious these galls, "in vast profusion," must be to the trees, and what an enormous quantity of sap they must divert from its legitimate channels. Those who value healthy growth I would, therefore, recommend not to use their pruning-hooks tremblingly, like "aspen o'er a brook," but firmly, and mindful of the circumstance, that, if the operation is to do any lasting good, these excrescences should not remain on the ground, but should be collected and consigned to the fire.—*Albert Müller; 'Gardener's Chronicle,'* p. 1226, *September* 23, 1871.

Entomological Notes, Captures, &c.

Orgyia gonostigma and the Volunteers.—The gallant defenders of our country (*in futuro*) are not, I regret to say, the defenders of O. gonostigma, but rather, on the other hand, inimical to its continuance in its Wimbledon haunt. Every year the numbers steadily diminish, partly owing to the oft-quoted cause, "the attacks of collectors," but still more to the disturbance of the locality throughout the summer, and especially during the time when the moths are on the wing, and the young larvæ are emerging; the latter event taking place in about a fortnight after the deposition of the eggs in July. From the character of the ground which forms the habitat of the species at Wimbledon (in the well-known hollows, or "ravines," as they are termed in an old work on Botany), it is not likely to establish itself anywhere else in that district if the Common ceases to be tenable. Gonostigma evidently delights in a sheltered spot; and the caterpillars, unlike those of its near relative, Antiqua, are not particularly inclined to stroll. "Now, here is a clear case," observed a friend to me the other day, who is strong for Darwin and his theories; "no doubt both sexes of Gonostigma had originally wings. Getting to this retired spot, just suited to their tastes, some individuals settled here, and, by and bye, the females got rid of their wings, which they did not need for oviposition." Ingenious hypothesis! But it does not explain why Antiqua, universally common, is also wingless in the female. Moreover, Gonostigma does occur in other localities, which do not, I believe, resemble exactly the ground it occupies at Wimbledon. There are only two, however, mentioned by Stainton, namely, Doncaster and Epping. A circumstance, which is unquestionably adverse to the increase of the species is this, that the larva hybernates, and, as I judge, almost invariably unprotected. The Common in that part is marshy, and at least a proportion of the larvæ are destroyed by the winter rains.—*J. R. S. Clifford.*

Larva of Acronycta Alni, &c., near Newcastle-under-Lyne.—We have had the good fortune to take A. Alni this year, in this neighbourhood. My father beat out three larvæ on August 30th, in Walton's Wood, in this parish. They were all close together; two on oak and one on hazel. They fed up in a few days on oak, and have made up satisfactorily in pieces of hollow stick. Two days after I went again to the same place, but could not meet with any more. We have done pretty well in beating this autumn. Leporina and Dictæa are not scarce; and Dromedarius, Camelina, Falcula, and Lacertula have come down freely. I have bred a fine series of Tiliaria from larvæ beaten from alder; and Xerampelina from a larva taken in the spring, on the trunk of an oak-tree. This was the first of the species that had been taken in North Staffordshire. My friend, Mr. John, of Stoke-upon-Trent, has, however, this autumn, succeeded in taking about twenty imagos on ash-trees, close to the improbable locality of the Potteries. He has also taken a single specimen of C. fluviata, and another of A. Australis, in the same locality. Another member of our Club, Mr. A. Smith, has taken a worn specimen of P. Bajularia this summer, at Swynnerton: this species was not known before to occur here. It would seem that a great variety of species are to be found in North Staffordshire, but that very many are not so abundant as in more favoured counties. We can do nothing at all at sugar this year. Is this borne out by the experience of other collectors.—*Thomas Daltry; Madeley Vicarage, Newcastle, Staffordshire, September* 22, 1871.

Lepidoptera at Witherslack.—On Good Friday I was at Witherslack, and took a fine series of Butalis Incongruella; also specimens of Depressaria Capreolella and Gracillaria

Phasianipennella flying during sunshine; and a number of other species of less note were out. Early in May I took ten specimens of Catoptria Aspidiscana, and found a number of larvæ of Rhodophæa Marmorella, E. Signatana, and E. Messingiella, which have duly come out. About the middle of May I took a dozen specimens of a rare Tortrix, Ephippiphora Nigricostana, in a damp wood, by sweeping; at the same time a fine series of Pterophorus Microdactylus turned up among the Eupatorium Cannabinum, as did also Eupœcilia Rupicola, E. Maculosana, Elachista Humiliella, Apicipunctella, E. Sylvata, and D. Carpophaga from the same locality. Early in June, at Witherslack, I took a fine lot of Adela Fibulella, Micropteryx Salopiella, Penthina Prælongana, P. Verhuellella, D. Saturnana, Plumbana, and Acuminatana; also larvæ of Depressaria Pulcherimella on wild carrot, Douglasella on Campanula, and Nanatella on carline thistle. At Windermere, same week, I took a fine lot of Micropteryx Mansuetella, seemed to be most common among meadowsweet; I also met with P. Diminutana, Subarcuana, Roxana, Arcuana, N. Myrtillella, Lithocolletis Tenella, Amyotella, Faginella, &c. On Whit Monday I gathered a lot of Genista Tinctoria, from which I bred a fine series of Anarsia Genistæ, C. Wailesella, and D. Atomella; and from Anthriscus Sylvestris I bred two hundred Depressaria Weirella. Early in July I took a fine series of Hyperanthus Humidalis, and specimens of C. Pyrrhulipennella, Limosipennella, A. Dilectella; and set a fine series of Argyresthia Œrariella (*n. s.*), D. Plumbana (*n. s.*), Consortana, Redimitana, P. Brassicana, Uncana, Siculana, E. Fractifasciana, Euchromia Rufana, H. Eluviella, Eudorea Atomalis, Truncicolalis, Muralis, Pyralalis, and Cratægalis. Early in August a fine series of A. Minimellus, Gelechia Senectella, and specimens of Gelechia Similella and Sequax, Asychna Fuscociliella, Zelleria Hepariella, Coriscium Cuculipennella, Penthina Sellana, Marginana and Betulætana, Argyresthia Annulatella, Andereggiella, and a grand lot of Trycheris Mediana, Gelechia Ligulella and Dodecella, Gracillaria Auroguttella, Laverna Miscella, Crambus Falsellus, Pinetellus, Contaminellus, Elachista Consortella, Adscitella, Cerussella, Biatomella, Triseriatella, Obscurella, and am now breeding Depressaria Capreolella from larvæ found feeding on wild carrot in July, and Peronea Aspersana from Potentilla, &c.—*J. B. Hodgkinson; 15, Spring Bank, Preston, September* 2, 1871.

Lepidoptera Captured in the New Forest.—The following are some of the best of my captures during a fortnight's stay, from the 5th to 21st August:—

Argynnis Paphia *var.* valezina. One.

A. Adippe and Aglaia. Not rare.

Limenitis Sibylla. Common; but of course worn.

Melanagria Galathea. One.

Satyrus Semele. In abundance everywhere on heaths.

Epinephele Hyperanthus. Two.

Lycæna Ægon. Abundant on heaths.

L. Corydon. One; taken flying amongst long grass in Rhinefield Sandys enclosure.

Leucophasia Sinapis. One.

Acherontia Atropos. One larva of the olive variety.

Liparis Monacha. Two; one male, one female. The female has laid me a batch of about 150 eggs.

Cleora Lichenaria. One.

Pseudoterpna cytisaria. Abundant.

Ephyra punctaria. Not rare at sugar; also by beating.

Acidalia trigeminata. Three; at sugar.

Selidosema plumaria. Five.

Notodonta dodonæa. One larva.

Acronycta Alni. Found a larva on bramble, which had changed its last skin all but the head; but having been unable to free itself from it, had died of starvation. It could not have been dead long, as all the markings were still distinct, and the colours bright when I found it. I took it on a sloping hill outside Foxleaze, on the Brokenhurst road.

Sugar was not unprofitable: the following were the best captures by its means:—

Cymatophora diluta. One.

Hydræcia nictitans. Two.

Cerigo cytherea. Not rare.

Triphæna janthina and fimbria. Common.

T. interjecta. One.

T. subsequa. Eleven. This came regularly to sugar in one locality, but never in any abundance, three being the largest number seen in one evening.

Cosmia affinis. Five.

Catocala sponsa. Common.

C. promissa. Seven.

Besides the above many commoner insects, such as trapezina, pyramidea, &c., swarmed on all the trees. In order to obtain any number of sponsa I found it necessary to have the sugar on by at least 7.30 P.M., as they, and also promissa, fly directly the sun has set.—*B. Lockyer; Camden Road, N.W., August* 25, 1871.

Lepidoptera bred in 1871.—I shall be obliged if you can find space for this list of Lepidoptera, which I have bred this year:—

N. Chaonia and Trepida. Several: from 28th April to 9th May.

S. Mendica. A fine series, reared from eggs: beginning of May.

T. Rubricosa. Reared from eggs kindly sent me by Mrs. Hutchinson; young larvæ fed freely upon the broad-leaved plantain: from 1st to 18th March about twenty-five moths came out, the largest I have seen.

H. Thalassina. Reared from eggs found on beech, at Loughton, last year: imago, 31st May.

A. Prodromaria. Appeared in my breeding-cages: from 11th March to 12th April.

C. Temeraria. From larva found on blackthorn, at Loughton, in August: 10th April.

T. Extersaria. Five, from larvæ on oak, in August: imagos, 22nd to 31st May.

E. Pendularia. Five, from larvæ on birch, at Rowhill Wood, in August: 17th to 25th May.

E. Rectangulata. Twelve specimens, from larvæ collected on wild apple, at Loughton, in May last.

H. Quercana. Four, from larvæ collected at Loughton, in May: imagos, end of June.

A. Salicana. A fine series, from larvæ on willow, on Hackney Marshes, in May: imagos, middle to end of June.

S. Neglectana. From larvæ on willow, on Hackney Marshes, in May: imagos, end of June.

E. Scutulana. Bred freely from thistle-stems; collected at Loughton, in April.

S. Achatana. Freely from larvæ on blackthorn, at Loughton, in May: imagos in July.

C. Splendana. Ten specimens from acorns; collected at Loughton in autumn: moths now coming out.

L. Smeathmanneana. One moth, on 31st May, from the seed-heads of the knobweed; collected at Rowhill Wood, in August, last year.

L. Dilucidana. A fine series from stems of the wild parsnip; collected during winter.

E. Roseana. Moths now emerging freely from teazel-heads.

L. Dipoltana. Five specimens of this pretty insect, from seed-heads of yarrow; collected at Southend last autumn.

S. Rufillana. From seed-heads of the wild carrot; collected at Southend last year: moths now coming out.

S. Chorargella (Boleti). Bred in profusion from Fungi; collected at Loughton in April.

D. Conterminella. From larva on willow, on Hackney Marshes, in May: imago, 27th June.

C. Bicolorella. Freely from larvæ on hazel, on Hackney Marshes, in June: imagos, July.

C. Viminiella. Freely from larvæ on willow, on Hackney Marshes, in June: imagos, July.

C. Ibipennella. Six, from larvæ on birch, at Wanstead: imagos in July.

C. Therinella. During the winter I collected about seventy cases, containing larvæ of this species, but four only escaped the devouring ravages of the ichneumon.

C. Argentulella. Freely from cases on the seed-heads of yarrow; collected at Southend last autumn: imagos in July;

E. Poella. I have bred this in some numbers from pupæ; collected on Hackney Marshes in spring.—*William Machin; 21, Argyle Road, Carlton Square, Mile End, London.*

Attractive Influence exercised by Females of Bombyx Quercus.—Writers upon Entomology have repeatedly referred to the fascination under which the males of this species are brought by the presence of an unimpregnated female; in fact, the story of "sembling," as put into operation with this and other Bombyces, is one of the stock anecdotes which is made to serve a variety of purposes, being sometimes used to demonstrate that insects possess a mysterious sense, unknown to us. I must own to a measure of scepticism as to some of the particulars related, a scepticism heightened by the fact that I had tried the experiment in vain with a female B. Quercus, in a spot which the species frequented. The emergence of three females, last July, gave me a new opportunity of testing the attractive power which resides in them, though I had to keep them prisoners for some days ere I could take them to a suitable locality. This I was able to do on August 1st, and had sufficient evidence that the very rapid discursive flight of the male Quercus can be brought to a check by the presence of the female. Several eagerly surrounded the bag in which these females were enclosed, almost regardless, for the moment, of the danger to themselves, while others flew round in circles. It was observable, however, that when struck at, if they escaped, they usually took alarm and flew off. Now and then one would sweep up, and, perceiving the position in which the objects were which had attracted him, departed at once, without endeavouring to come any closer to the box containing the prisoners. Apparently, the presence of the male insect is also, in some manner, indicated to the female, for those that were taken out for this experiment, though before that they were quiescent in the day-time, were in a state of agitation, even when the box in which they were enclosed was kept quite still. After 2 P.M. the males, from some cause, ceased to take any notice of the females, though they had not ceased to fly about. The female of Quercus, when impregnated, deposits her eggs with great rapidity, a hundred or more being got rid of in an hour. The whole number are not got rid of in confinement, the stimulus of flight being necessary to remove the whole from the ovary.—*J. R. S. Clifford.*

P. Daplidice and A. Lathonia in Jersey.—These rare insects have been tolerably abundant here this season. The former (of which I have taken thirteen) are only found in one locality, and have been established there these last two years, before which time they were seldom seen in the island. The latter has been taken in several localities, also rather abundantly, having taken sixteen myself, and I know of other collectors equally successful: this, also, is seldom seen.—*J. Piquet; 12, York Street, Jersey, October 5, 1871.*

Sphinx Convolvuli near Stalybridge.—A specimen of

Sphinx Convolvuli was captured in a mechanic's shop at Copley, near Stalybridge, on the 3rd of October, and is now in my possession.—*Mark Kershaw; Hillgate Street, Hurst Brook, Ashton-under-Lyne.*

S. Convolvuli at Highgate.—A fine specimen of this insect was captured at Highgate, on the 7th inst., by Mr. E. Danty, on a public-house window.—*W. E. Davis.*

Zygæna Filipendulæ in October.—Having returned from a hard day's digging, I wish to send you, so that you may receive it living, a specimen of Filipendulæ. I have never seen it before, except in the usual season; nor have I heard, so far as I recollect, of its appearing at this date. I saw it on the wing, and at first quite failed to recognize it at such a time: but soon saw it was a burnet or cinnabar.—*R. F. Towndrow; Woburn Cottage, Malvern, Lincolnshire, October* 18, 1871.

It is a very unusual circumstance to capture Zygæna Filipendulæ in October: it must, of course, be a second brood. It is, apparently, just out of the chrysalis. I am obliged for the specimen.

Deiopeia pulchella Bred in England.—The numerous accounts, which appeared in the 'Entomologist' for last month, of the capture of D. pulchella, remind me that I have often thought it might be worth while recording in its pages the fact that Pulchella has been bred in this country, and that not many years ago. It was, I believe, in 1856 that a gentleman, with whom I have a very slight acquaintance, a good naturalist, but not a collector of insects, captured a female at Torquay, where he was then staying. This female laid a few eggs on the side of the pill-box in which it was taken, and, I believe, fourteen or fifteen larvæ were hatched. How many were reared, and on what plant the larvæ were fed, I do not now recollect; but my acquaintance very kindly sent me a pair of them, which now grace my cabinet. Besides this pair, I also possess another pair, very old and dilapidated, which were taken by the late Dr. Aldridge, of Torquay. Also another, a curious variety, taken some years ago in Lancashire, and sent to me by Mr. J. B. Hodgkinson; and one fine one taken on the Sussex coast, near Hastings, procured for me by the late Mr. Bouchard, about ten years ago.—[*Rev.*] *Henry Burney; Wavendon Rectory, Woburn, Bedfordshire, October* 3, 1871.

Deiopeia pulchella at Folkestone.—I had the good fortune to take a specimen of D. pulchella, at Folkestone, on the 12th September last.—*C. Oldham; Newton House, Amherst Lane, Hackney.*

Deiopeia pulchella in Dorsetshire.—Seeing it mentioned in your 'History of British Moths,' that Deiopeia pulchella is a very rare moth, I venture to trouble you with the information that I have one which exactly corresponds with your description. It was caught about a month ago by my little son (aged four), on the low-lying shore of Poole Harbour, Dorsetshire, where we have been spending our holidays, and where my boys (this one, and an elder one of six) began to form their little collection of moths and butterflies. The forget-me-not grew plentifully near the spot where it was caught.—*Frances J. Haley; 3, Cambridge Gardens, Richmond Hill, September 29*, 1871.

Anticlea sinuata near Newbury.—At the latter end of June last my friend Mr. W. H. Herbert, of Wyfield Manor, took a beautiful specimen of A. sinuata. When captured it was found sitting on a nettle-leaf. The land adjoining the spot where the insect was found is barren and sandy, but, in spots, growing an abundance of Galium verum; so that Mr. Wratislaw's conjecture, regarding this and allied species, certainly appears to be correct.—*Henry Reeks.*

Xanthia gilvago at Coombe Wood.—In Mr. Doubleday's letter, published in last month's 'Entomologist,' he says, speaking of Xanthia gilvago:—"I was surprised to see it, as I do not think this species has occurred before in the neighbourhood of London." I beg to inform you that my brother and I took this insect last year at sugar in Coombe Wood.—*H. D. Greville; Southfields, Wandsworth, October* 3, 1871.

A New British Phycis.—During a short stay in the Isle of Wight, last July, I captured a few specimens of a species of Phycis, which I felt certain at the time to be rare in, if not new to, Britain. I exhibited a specimen at the following Thursday meeting of our Society (the Haggerstone); it was not known by anyone present. Mr. Henry Doubleday has seen it, but not named it: he informs me that in all probability it is figured in Herrich-Schæffer. Perhaps you will be so kind as to see what you can do towards identifying it for me.—*W. E. Davis; 36, Worship Street, City Road, October* 2, 1871.

[I propose to call this species Phycis Davisellus.—*Edward Newman.*]

Copris lunaris at Hertford.—A few weeks ago I took a fine specimen of Copris lunaris, under cow-dung, near Christchurch, in the South of Hampshire. I believe it to be a very unusual locality for this beetle.—*H. A. Lucas; Haileybury College, Hertford, October* 16, 1871.

Epunda lutulenta, E. lichenea, Dryops femorata, &c., at Brixham.—Last week Epunda lutulenta was pretty plentiful on ivy here, but in very poor condition. I have had one specimen of E. nigra, from pupa found under moss, but have not seen it at ivy. Lichenea is most abundant, but is now quite worn. Common things in great abundance. If any coleopterist wants Dryops femorata, let him now speak, as it is quite a plague here.—*Edwin Roper-Curzon; Parkham Wood, Brixham, Devon, October* 10, 1871.

Entomology at Longfield Rectory.—Selenia illunaria has proved triple-brooded with me this year, an imago having emerged on the 12th September from an egg laid in July; it was little more than a week in the pupa state. The rest of the larvæ are changing now; it is very similar to the perfect insects of the second brood. During the last week I have taken two specimens of the plain variety of X. Cerago (X. flavescens of Esper). C. Xerampelina was taken here at sugar, on the 7th September. It is quite new to this neighbourhood. That it should be found here at all is scarcely to be expected, as the district is peculiarly dry and devoid of ash trees.—[*Rev.*] *P. H. Jennings; Longfield Rectory, Gravesend, September* 20, 1871.

Captures near Newcastle.—I have nothing of great importance from this quarter to report. N. Elymi has occurred in considerable numbers on the Durham coast, near South Shields, upwards of fifty having been taken by the different members of our Club, at rest on the sand-reed, and flying at dusk. On account of the cold and wet spring and summer—indeed we had no summer weather until the last week in July—the hybernating larvæ were very long in feeding up. I found larvæ of A. caja, scarcely one-fourth of an inch in length, feeding on the coast on the 12th of July; and also an imago (female), during the last week in July or first in August. The common Agrotes,—Tritici, Valligera, Cursoria, &c.,—usually very plentiful on our coast, appeared in very small numbers; probably the larvæ may have perished during the severe wet and frosty weather in May, and even in June.—*W. Maling; St. Mary's Terrace, Jesmond Road, Newcastle-on-Tyne, September* 18, 1871.

Pieris Daplidice near Dover.—I saw a specimen of this rare insect in the possession of a lad, Henry Neall, son of Mr. J. S. Neall, of Croydon, who informed me that he took it on August 25th, at St. Margaret's, about four miles from Dover, as it was resting on a thistle-blossom. It was a male, and in good condition. Should this prove to be a second report of the same capture, you will, doubtless, be glad of the further details I have been able to furnish you with.—[*Rev.*] *Wm. Farren White; Stonehouse Vicarage, Gloucestershire, October* 20, 1871.

Cerastis erythrocephala at Canterbury.—At the beginning of October I took a fine female Erythrocephala near this place; and this day, the 24th, I have just taken another in the same locality; but they are both very pale specimens, quite unlike the six specimens which I took at the same place in October, 1866. The latter were very dark brown on the disk, and pale along the costa; those of this year, I believe, are what is called Cerastis glabra. I have also captured the finest varieties of Aurago I have ever seen; some of them entirely red; others all of one colour, with the band on the hind margin. Also some fine specimens of X. semibrunnea and Croceago. — *Geo. Parry; Church Street, St. Paul's, Canterbury, October* 24, 1871.

Lateness of the Season (1871).—Though in the spring months—in some particular localities, as has been recorded in the 'Entomologist,'—certain species of Lepidoptera appeared sooner than usual (though this was not the case generally in the districts near the metropolis with which I am acquainted), a considerable retardation has since occured. Many species are a fortnight, or even three weeks, after time. It was singular, too, that such species as Zeuzera Æsculi and Sesia Cynipiformis (as I observed in Hyde Park) were considerably delayed, though the larval habits, to a considerable extent, prevent the insect from being affected by changes of temperature.—*J. R. S. Clifford.*

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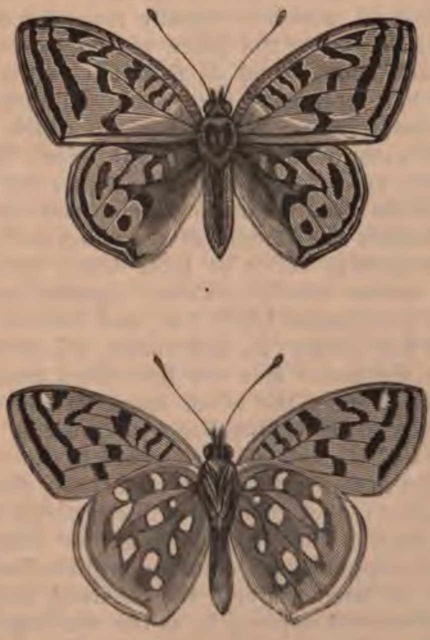
Answers to Correspondents.



Variety of Argynnis Aglaia: Upper and Under Sides of the same Specimen.

Variety of Aglaia.—I beg to send you a curious variety, and one, I think, not figured in any work, of Argynnis Aglaia, which I captured, near Beachy Head, on the 15th July this year. I also took on the 24th August, at Folkestone, a curious specimen of Colias Edusa, three of the wings being precisely similar to those of the female, and the fourth, which is the left fore wing, that of the male. Does this often occur? — *M. S. Inman. 11, Upper Hamilton Terrace, N. W.*

The wings are of a bright sienna-brown: the fore wings have the usual margin edged with black, and the usual four long transverse black spots, known as the *note* mark, under the base of the subcostal vein on the upper side; a waved and irregular narrow black band crosses the middle of the wing, and between this and the hind margin are two oblique black bars, the inner of which is slightly interrupted, the outer entire: the inner takes the place of the transverse series of round black spots usual in this part of the wing; the outer black bar represents the usual scalloped black bar exterior to the series of black spots to which I have just alluded; still exterior to this is a double black line parallel to, and almost adjoining, the hind margin: the hind wings have a few of the usual black markings near the base, and extending towards the middle of the wing, and exterior to these is a transverse series of three black spots, the first oblong, the others nearly circular: parallel to the hind margin is a continuous black bar, and exterior to this a double black line parallel to, and almost adjoining, the hind margin. On the under side the fore wings present no very remarkable character: the silver spots on the disk of the hind wing correspond in number with those of the normal insect, but it will be seen, by a reference to the lower figure, that they differ in form; the most remarkable deviation from normal character is that the usual series of seven semicircular silver spots parallel to the hind margin is entirely absent, and its place supplied by a continuous silver bar parallel to the margin. It need scarcely be observed that the term parallel is not strictly applicable, as the markings thus denominated ought to be straight, whereas, in this instance, they follow the curved outline of the wing. In reply to Mr. Inman's query as to the monstrosity in the specimen of *Colias Edusa*, I may reply, without hesitation, that such monstrosities rarely occur; nevertheless, I have known instances, more especially in Mr. Bond's rich collection, of specimens which have one wing only male, and others with one wing only female.

Description of Phycis Davisellus.—At p. 444 of the November 'Entomologist,' Mr. Davis announces the discovery of a new Phycis in the Isle of Wight, and, at the same time, he placed it in my hands to name and describe. Not having been able to find a previous description, I have written the following by Mr. Davis's request:—The palpi are acutely pointed, and the tips naked; the colour of the wings is pale wainscot-brown; there are two transverse bars of a darker or sepia-brown; the first of these is nearer the base than the middle of the wing, and is interrupted at half its length; the second is parallel with the hind margin, and slightly bent; between these bars is a white longitudinal line occupying nearly the middle of the wing; this appears to pass through the inner dark bar, and to extend towards the base of the wing, but does not reach it; at the distal extremity it is forked; below this white line are two others much shorter, and immediately adjoining the first brown bar; these three white markings are seated on wing-rays, by which position they are raised and rendered conspicuous; the second or outer transverse bar is combined on its outer border with a pale bar; both are narrow; a black spot is attached to the first or inner bar on its inner border. This insect is about the size of P. formosellus, but is totally different in every other respect. It is possible, and indeed probable, that a previous description of this species may have been published on the continent; if so, I trust implicitly to the vigilant and unremitting kindness of publishing entomologists to point out my error.

Orgyia pudibunda, &c.—In reference to O. pudibunda (Entom. v. 428) I have known a whole brood of eggs hatch and feed up and emerge the same season. Also I have bred imagos from Caja, Plantaginis, Russula, and Fuliginosa, all from eggs laid the same season. I once had a third batch of eggs from Fuliginosa, and had some imagos from them; the rest hybernated in the larva state: so there were mother, daughter and grand-daughter, all the same season. By keeping the larvæ and pupæ warm, you will bring the same result I have stated. The entomologists down here call it forcing them.—*William Johnson; 26, Brenton Street, Park Road, Liverpool.*

Orgyia pudibunda.—Referring to Mr. Earl's communication in last month's 'Entomologist' (v. 428), I may mention that having received a lot of pupæ from Mr. Harwood, of Colchester, among which were four Pudibunda, I was surprised to find a fine female in the breeding-cage, about a week ago, and since then have had a second out, also a female, which is at present alive. She seems almost torpid, as the cage is in a thorough draught from an open window; and I shall let her remain in peace as long as she is quiet. While I am writing I may as well mention that a very fine female S. Convolvuli was found floating in the river at South Shields, in September last, and is now in the collection of Mr. Eales, of that town. It was unskilfully handled at first, and so is slightly damaged; but, considering what it has gone through, it is a fine specimen. I can confirm all that Mr. Maling says about the season having been unfavourable in this district; and, with the exception of between twenty and thirty Elymi, I have taken nothing particular.—*J. C. Wassermann; 5, Brunswick Place, Newcastle-on-Tyne, November* 2, 1871.

Orgyia pudibunda.—With reference to the paragraph in the 'Entomologist' for November (Entom. v. 428), respecting Orgyia pudibunda, I have to inform you that last year I had eggs of this insect, which hatched on the 10th of May. I noticed some of the larvæ spinning up on the 7th of August. On the 2nd of September three imagos appeared; whilst some of the larvæ were still feeding.—*William Talbot; Mount Pleasant, Wakefield, November* 10, 1871.

Hybrid Smerinthi.—I also bred hybrids betwixt Smerinthus ocellatus and Smerinthus Populi; some of them remaining only twenty-two days in the pupa state.—*Id.*

Galls and Gall-makers.—The following notes refer to some gall-making and parasitic insects, which Mr. Moncreaff has kindly forwarded to me, with his manuscript remarks:—

Tephritis signata, *Meig.* "Reared on September 14th, from galls in the receptacle of Inula crithmoides; the receptacle becomes thickened and enlarged, and has a hard woody texture. About seven cells in one flower-head. The larva forms a cocoon."

Phytomyza lateralis, *Fallen.* "Reared from flower-heads of Matricaria; feeds in the receptacle, and forms a cocoon in it."

Mecinus collaris, *Germ.* "From galls on Plantago maritima; the Hymenoptera (Pteromalus imbutus, *Wlk.*) are parasitic on that beetle, and are found in its galls, and form a close-fitting case. The small gnats (Cecidomyia sp—— ?) were also reared out of that plant."

One specimen of Tetrastichus Diaphantus, *Wlk.*, accompanied the three preceding species: it is, probably, parasitic on the Cecidomyia.

Three species were reared by Mr. Moncreaff from the stem of the dock. 1. A little Dipterous fly (Muscidæ) unknown to me. 2. A species of Cynipidæ. 3. Syntomopus incurvus, *Wlk.*, probably parasitic on the Dipterous insect.

"From the willow herb." The fly much resembles Tetrastichus Adalia, *Wlk.*, but the antennæ seem to be darker and stouter.

Bracon tenuicornis, *Wesm.*, and Isosoma hyalipennis, *Wlk.*, from Triticum repens.

"The galls in the stems of Festuca ovina are of two sorts: one single-celled, and containing only one larva; the other many-celled, and each cell containing one larva.

"Last autumn I separated these as closely as I could, and placed each description of galls in close-corked bottles, and I felt somewhat confident that by this means I should discover the true gall-maker, which I fully expected to emerge from the single-celled gall. I now send you the flies that emerged in May and June." The flies from the single-celled galls are Eurytoma collaris, *Wlk.* The flies from the many-celled galls are Eurytoma collaris, Isosoma depressa, *Wlk.*, Decatoma mellea, *Wlk.*, Pteromalus fulviventris, *Wlk.*, and Trigonoderus hirticornis, *Wlk.?* The Isosoma was the most numerous, and next to it the Pteromalus and the Decatoma; the Eurytoma was few in number; and of the Trigonoderus there were only two specimens. The Pteromalus and the Trigonoderus may be considered to be parasitic on the three genera of Eurytomidæ, and this family, of which, among all the Chalcidites, the abdominal structure most resembles that of the Cynipidæ, appear to be occasionally gall-makers, and occasionally dwellers in galls made by other insects.—*Francis Walker.*

Chelonia caja bred from eggs laid this year.—This day, November 8th, I have seen a specimen of C. caja alive, from pupæ, the eggs laid this year. I have had also a larva of B. Rubi turn to pupa without any cocoon whatever. Is not this singular? I always thought they hybernated.—*W. Mann; Bristol.*

Liparis dispar.—The following notes on L. dispar may be interesting to Mr. Clifford and others. On July 5th, of this year, I was fortunate enough to find two of the larvæ. They were féeding on a rose-tree, between Tilbury and Southend, just off the Thames marshes. I would add to the description of the larvæ, as given in Newman's 'British Moths,' that the tubercles on segments 2, 3, 4, 5, 6, are of a deep blue colour; those on 7, 8, 9, 10, 11, 12, of a blood-red. The larvæ were full fed on July 10th and 15th, and then spun very slight webs. They fed on whitethorn or rose, with equal readiness. A perfect insect appeared on July 28th, a very fine male; and a female on August 5th: this latter was unfortunately a cripple. Both insects were of the typical form.—*R. W. Bowyer; Haileybury College, near Hertford.*

Entomological Pins.—A correspondent regrets the perishable condition of the ordinary entomological pin, when acted upon by the corrosive matter formed in the bodies of many preserved insects. I would suggest pins made of aluminium, or aluminium bronze, which probably will resist this acid reaction. At any rate, should any compound of aluminium be formed it will be colourless, and, therefore, will not disfigure natural-history specimens with verdigris spots. Some of our collectors, who live in the manufacturing districts, may have it in their power to turn out pins from aluminium wire. By so doing, they will confer a benefit on the entomological public.—*G. B. Buckton.*

Chelonia caja; second brood.—As you are interested in the life of my Caja (Entom. v. 425), I have much pleasure in telling you the large larvæ began to spin on the 8th September. Some came out the middle of October; and they continued to emerge until the first week in November. Some were very fine; the largest in expanse of wing measuring $3\frac{3}{16}$ inches. Three which came out in November I have left in the feeding-cage, to see if they will hybernate in the perfect state.—[*Miss*] *E. Bethell; Croydon, November* 23, 1871.

EDWARD NEWMAN.

Description of the Larvæ of Acidalia subsericeata and mancuniata.—The following notes on the larvæ of these species or varieties may, perhaps, prove interesting. For the opportunity of comparing the two, I am indebted to the kindness of the Rev. J. Hellins, of Exeter, who sent me the larvæ in July, 1870. They fed on Polygonum aviculare; and, on August 25th, I described them as follows. *Subsericeata*:—Length about three-quarters of an inch, tolerably stout posteriorly, but tapering considerably from the 9th to the 2nd segment; head small, nearly as broad as the 2nd segment, and notched on the crown; a division in the centre of the face renders the cheeks, which are rounded, prominent and distinct; body flattened when seen from above, but rounded on the ventral surface; divisions of the 6th, 7th, 8th and 9th segments, very conspicuous, the anterior end of each being narrower than the posterior; there are a few scattered, but scarcely perceptible, hairs, most conspicuous on the 2nd segment, when they are pointed forwards; skin ribbed transversely and rather tough; ground colour composed of several shades of brown and ochreous, the 8th and 9th segments being conspicuously of the latter colour, some specimens having a faint green tinge; head ochreous, surrounded with dark brown; mouth, and central divisions of the face, black; from the notch in the head extends the fine pale grayish dorsal line, bordered on each side with an equally narrow dark line; dorsally, on the anterior part of the 9th segment, is a conspicuous rust-coloured mark, shaped somewhat like an arrow-head, the apex pointed anteriorly; there are a number of confused brown markings along the spiracles, which are of a still darker brown; usual segmental dots conspicuous, black; the ground of the ventral surface is of a beautiful slate-colour, with a series of curiously-shaped dull black marks throughout its entire length, which give it a very pretty appearance. When at rest the food-plant is grasped by the claspers, the body stretched out at full length, the head being brought slightly forward, and tucked in amongst the legs. *Mancuniata*:—In habits and shape precisely like Subsericeata, but, *perhaps*, a trifle more slender; ground colour dark brown, strongly tinged with chocolate, and without the ochreous markings so conspicuous on the 8th and 9th segments in Subsericeata; head marked as in that species, but duller in appearance; dorsal line also similar to Subsericeata, but the rust-like mark so conspicuous in that species is wanting in Mancuniata, but in one variety it is replaced (though in a different position) by two distinct white chalk-like marks; ventral surface as in Subsericeata. At the time I had my larvæ, my friend Mr. J. P. Barrett, of Peckham, also reared a brood of Subsericeata, and, as his notes differ slightly from my observations, I append them. In a letter dated October 25th, 1870, he says:—"I received a drawing of Mancuniata from Mr. Doubleday this morning, and should like to know whether your notes agree with mine. The figure was taken by Mr. Buckler, in 1865, from Dr. Knaggs' larvæ. I think it is of a darker brownish tinge, in general, than my Subsericeata, and the black dots are more conspicuous. The last segments are paler than the others, but appear to want the yellowish tinge that Subsericeata possesses. In other respects I can see no difference, either in size or shape." On receipt of this letter I forwarded my Mancuniata larvæ to Mr. Barrett for comparison with his Subsericeata; and, in a letter dated October 28th, he says:—"I am now quite satisfied that there is but very slight difference between the larvæ of Mancuniata and Subsericeata; I believe that you would scarcely be able to pick out the *paler* larva you sent, if it were placed in a batch of Subsericeata. The chocolate-brown one might readily be distinguished, but I should not be surprised if Subsericeata varies similarly. You mention in your notes that the larvæ of Mancuniata are, perhaps, more slender than Subsericeata. I have noticed that in this respect my larvæ varied considerably, but I am scarcely prepared to say, though I suspect such to be the case, that the more slender larvæ produce the smaller insects, *viz.*, the males. The figure before mentioned" (Mr. Buckler's) "is taken from a larva as stout as any I have had. The chief point of distinction that I have noted is the ochreous marking on the latter segments, and, with respect to this, it varies much in intensity. A batch of larvæ that I had last year, belonging to Subsericeata, scarcely possessed that marking, whilst those (or some of them) I had lately were very conspicuously blotched." Subsequently, when in Huddersfield, Mr. Barrett saw my Subsericeata larvæ, and found they varied very much from those he had reared; indeed, my Mancuniata were more like his Subsericeata than were my larvæ of that species. I offer no opinion as to the distinctness of the species. — *Geo. T. Porritt; Huddersfield, November* 4, 1871.

Entomological Notes, Captures, &c.

Early appearance of N. Lucina.—On the 7th of June I obtained seventeen eggs of N. Lucina, which commenced hatching about the 13th, the larvæ feeding till the 17th July, when only three survived: these went to pupa about this date, and were left in a cold room. On the 6th of October I was surprised to find one had emerged, a beautiful specimen; and on the 20th of the same month another made its appearance, though not quite such a perfect specimen as its predecessor. The third is still in pupa, in which state I conclude it will remain like a rational insect until June next, which, I believe, is the proper time for its emergence. Is not this unusual, where the pupæ were kept in a cold temperature?—*M. N. Inman.*

The Genus Platypteryx.—From facts I have observed in connection with this genus, I have arrived at the conclusion that they are very capricious in their appearance, and may be met with from early spring to the close of the autumn. Hamula seems to be triple-brooded; and very probably Lacertula also. Both of these I have reared from the egg, but have never succeeded in obtaining eggs from Unguicula or Falcula, so that I know little of their economy, but have taken them by beating in May and June, although I have never been able to discover any second brood in September. I shall be glad to hear of the experience of any brother entomologist with respect to these two species (Falcula and Unguicula). The first specimens of Hamula which I took this year were on the 20th of May, three in number, one being a female. The next specimen I took was on the 24th of May; this was also a female, and laid about a dozen eggs. These eggs hatched on the 2nd of June, and the young larvæ fed for a month, and then spun up (July 6th and 7th). The imagos from these emerged on July 20th and 21st; and I obtained a further supply of eggs. The young larvæ hatched from these, fed well till the beginning of August, when they all died off, on account of being left in a window in a scorching sun. Had these larvæ lived and turned into pupæ, I believe that the imagos would have emerged this year; and this supposition is founded on the fact of my having taken a specimen of Hamula (at light) on the 21st of September last year. Thus, it appears to me that there must be three broods of Hamula a year. I believe that Lacertula is also triple-brooded, but have not positive proof. As in the case of Hamula, I took the first specimen of Lacertula on the 24th of May this year, and the larvæ produced from eggs laid by this female turned to pupæ on July 2nd, feeding up much more slowly than those of Hamula. The pupæ were only three in number, two of which emerged on the 11th of August, and one still remains in the pupa state. The two imagos laid a batch of eggs, which unfortunately proved unfertile. Had they hatched into larvæ the imagos would probably have appeared in September. I mentioned in the 'Entomologist,' last year, the capture of a specimen of P. Lacertula at the end of April, and I now believe that it was a hybernated specimen of the September brood of 1869, since it was not freshly emerged, nor have I ever met with the perfect insect before the 20th of May.—*G. H. Raynor; Dryhill Park, Tonbridge, November* 15, 1871.

Breeding Cossus Ligniperda and Zeuzera Æsculi.—For the information of Messrs. Arthur du Moulin and J. R. S. Clifford, I venture to send a few remarks respecting C. Ligniperda and Z. Æsculi, having had much experience with both species. I do not think the method you suggest with Ligniperda larvæ would prove effectual, as muslin would not restrain them. Both species should be taken when full fed. When I first tried Cossus larvæ they ate through a half-inch deal box, and finished up by devouring a lot of cork setting-boards. I next tried them by putting some willow-stumps, containing the larvæ, in a small brick house I built in my garden, and in the following June found the empty pupæ cases sticking out of the mortar on the outside (not one, but a dozen or more). I next tried them by putting some larvæ in a large garden-pot, about fifteen inches deep, with a little mould in the bottom, then some pieces of decayed willow, and covered it with glass. I found this plan succeed admirably, rearing all the larvæ. Cossus larvæ invariably feed in the trunks of large trees, seldom going higher than five feet from the ground, and in the autumn months may be found full fed under the bark of the trees infested with them, some inch or two under the ground. With Æsculi it is very different, as they are found at the top of high ash or elm trees; they feed on the sap or centre of the small branches, varying in thickness from one's finger to one's wrist. Their presence may be ascertained by the small pellets of pink frass lying about under the trees. I noticed some trees so infested two years since in Tuffnell Park. Myself and others obtained permission to cut some of the branches, which we kept in a damp place, and from which we succeeded in rearing many of the perfect insect. I went to the same trees in July, and took twenty dozen imagos from one tree; they were all in the topmost branches of a large elm. I divided the specimens I secured with two or three brother entomologists who accompanied me, and we could have taken as many more if we had required them. I notice that the trees in my neighbourhood are much infested with the larvæ this autumn. I have found the larvæ of Æsculi in the branches of elm, ash and pear, and in the small trunks or stems of whitethorn, lilac and box.—*J. Russell; 18, Mount Pleasant Road, Hornsey.*

Larvæ of Bombyx Quercus feeding on Ivy.—It may be interesting to some of your readers to know that some little time ago I found the larvæ of B. Quercus feeding on ivy in the garden. Is not this a very unnatural food-plant for this species? The larvæ in question must, I think, have been produced from some eggs which I threw away during the summer. I suppose, on being hatched, they began to feed on the first thing that came to hand, which happened to be the ivy. I cannot otherwise account for their strange choice.—*M. A. J. Pitman; Oxford House, Kidbrooke Park Road, Blackheath.*

[In a case like this, where the names have been confused and frequently transposed, it would be interesting if my correspondent can state positively whether the species intended is the old Quercus of Linneus, now usually called Callunæ, or the Quercus of Doubleday's List, which I have suggested should be called Familiaris. Most entomologists are sufficiently acquainted with these insects to have formed an opinion of their distinctness or otherwise, and, therefore, can easily make it apparent to which they refer.—*Edward Newman.*]

On Breeding Acherontia Atropos.—On the 23rd inst. a fine male specimen of Acherontia Atropos emerged in one of my cages. The specimen was bred from a larva brought to me at Lyndhurst, as already recorded. The larva was of the olive variety, with white spots on the anterior segments; it was full fed, and buried August 21st. The pupa I kept moist on flannel laid over twigs and moss, and its cage was placed in the kitchen as near the stove as possible. I took care to leave a kind of bank in front of the pupa, so that it had something to press against when the imago was ready to emerge. I also placed two twigs exactly in front of it for the imago to crawl up. I think I moistened the moss and flannel about half a dozen times after removing it (the pupa) from the earth. I send this because it appears that it is considered rather a "slice of luck" to breed Atropos on the first trial. Apropos of this larva I may mention the following, which occurred to me, and shows what curious ideas of natural history in general many persons have:—The cage in which I transported the larva from Lyndhurst to London happened to be rather insecure, so the larva, which was roaming about in search of a place to bury in, amused itself by coming out and taking exploring excursions round the railway-carriage (a first-class one). The first time it escaped it was discovered crawling under the seat, and a lady who was in the carriage, and was much struck by its appearance, enquired (quite seriously), "Is the creature a fish?" I was, previously, unaware of any likeness existing between a Lepidopterous larva and a fish. Perhaps the lady imagined it was "a walking perch."—*Bernard Lockyer;* 179, *Camden Road, London, N.W.*, *October* 30, 1871.

Larvæ of Bombyx Rubi burying in the Earth.—On the 14th of September I found two Bombyx Rubi caterpillars, and on the 23rd another. I should imagine that they were very nearly full grown; and I fed them on bramble up till about the 19th of October, when they one by one began to disappear. To-day, on digging in the earth of my breeding-cage, I came upon them all three, about half an inch under the surface, curled up in a ring, and apparently quite alive and well. I shall be very glad if you will tell me, through the means of the 'Entomologist," if it is usual for this species of caterpillar to hybernate, as, from your book, I understand that they generally spin a large cocoon in the leaves of their food-plant, and remain there till the following June.—*Byron Noel; East Budleigh, Budleigh Salterton, South Devon, October* 29, 1871.

Thera firmata in October.—I have lately captured three specimens of Thera firmata, on October 23rd, 27th, and November 15th respectively. Your work on 'British Moths' mentions July as the time that the moth appears.—*A. F. Buxton; Rugby, November* 22, 1871.

Two Larvæ in One Cocoon.—I have bred a great quantity of E. Lanestris this year, and have found three or four instances of two larvæ using the same cocoon. I opened one and found that it had no partition of any kind inside. I just mention this thinking it may interest you.—[*Rev.*] *A. C. Hervey; Colmer Rectory, Alton, October* 26, 1871.

Eremobia ochroleuca near Weymouth.—On the 9th of September last I captured a specimen of Eremobia ochroleuca on the Downs, near Weymouth, Dorset. This is not one of the few localities mentioned in your work on 'British Moths.'—*A. F. Buxton; Rugby School, November* 4, 1871.

Aplasta ononaria at Folkestone.—I had the pleasure of taking Aplasta ononaria (a fine female) here, on Monday last.—*William Purdey;* 15, *Grove Terrace, Folkestone, June* 23, 1871.—*E. M. M., September*, 1871.

Lepidoptera in Ayrshire.—I may mention as I am writing that I captured a fine specimen of Plusia Festucæ, on the night of the 30th June. Is not this an unusually early appearance? I also took Thyatira Batis in the last week of May; and the insect was very plentiful here in June. Festucæ was flying over the raspberry bushes when I captured it.—*Henry Anderson; Cloncaird Castle, Maybole, Ayrshire, August* 7, 1871.

Economy of Sesia Tipuliformis.—Having cut open some twigs of the black and red currant last September, I was astonished to find larvæ of the above of considerable size, in fact, nearly full grown to all appearance, being almost identical with those I have discovered in March and April. At other times, in splitting the stems and twigs in autumn, I have found the larvæ small, and I supposed, with others, that they fed on slowly through the winter. It is the more remarkable that the larvæ should be large this autumn, because, in the same spot, the imagos appeared later than usual this year, and were not out until the second week in July. It seems, therefore, possible that some individuals of this species may pass two winters in the larval state. I hope, next year, to be able to make a careful examination of the bushes, during the time the perfect insect is out.—*J. R. S. Clifford; 59, Robert Street, Chelsea.*

Female Moths at Sugar.—The overwhelming majority of the female moths which resort to sugar will be found to be, as I believe, unimpregnated, and, hence, the eggs they deposit, while imprisoned, are not good for anything except microscopic objects. The chief object of the females, throughout their lives, is evidently the continuance of the species; and, immediately they are prepared for the work of oviposition, they betake themselves to this with diligence, and neglect the attractions of sugar and flowers. It has been supposed by some that the organs of smell are much more acute in most male moths than in the females, and, were this the case, it would account for the admitted paucity of females at sugar. Anatomy, however, does not throw much light upon this subject; and, before we can decide as to the relative functions of the organs of smell in male and female moths, we must be able to answer, with positiveness, the question:—"Where does the sense of smell reside?"—*J. R. S. Clifford.*

Hepialus lupulinus (second appearance).—This species is usually constant in its time of appearance, being on the wing, near London, in the early part of June, and seldom affected much by change in the temperature. I discovered, last September, specimens in good condition on palings, near Fulham; and as these were hardly likely to have been survivors of the June brood, there must have been a partial second emergence. I have no doubt, in some places, the larva does a degree of injury to the roots of the potato, as the moths swarm occasionally in and about potato-fields.—*J. R. S. Clifford.*

Cerastis erythrocephala at Darenth Wood.—I took a fine specimen of Erythrocephala in Darenth Wood, at sugar, at the end of October. I took it at first for a variety of Spadicea; I think it might easily be overlooked for a pale variety of that species.—*J. Moore;* 51, *Chapel Street, Pentonville.*

Extracts from the Proceedings of the Entomological Society, November 6, 1871.

Preserved Larvæ of Lepidoptera.—Mr. R. L. Davis exhibited an extensive series of beautifully preserved larvæ of Lepidoptera and other insects. Among them were specimens illustrating the complete natural history of Cossus ligniperda, and of some other common species. Mr. Bond exhibited examples of Zygæna exulans, a recent addition to the British Fauna, captured at Braemar, by Dr. F. Buchanan White. Also a specimen of Catocala Fraxini, captured in the Regent's Park, on the 12th of September last; and he remarked that the insect had occurred in that locality for three successive years. Furthermore he exhibited a very singular variety of Chœrocampa Elpenor, from Ipswich, in which the central portion of each fore wing was perfectly hyaline and free from scales, the insect being in perfect condition, and presenting no indication of the peculiarity having been induced by artificial means.

[These specimens of Zygæna exulans have been determined as the variety "Vanadis," which fact I mentioned several months ago on the wrapper of the 'Entomologist.' It was perfectly excusable for my friend Bond to have overlooked a wrapper notice of this kind; but certainly *in*excusable in me not to have inserted it in the body of the work.—*Edward Newman.*]

Black Variety of Melanagria Galathea. Mr. Vaughan exhibited a nearly black variety of Arge Galathea, captured in Kent by Mr. Farn.

New British Coleoptera.—Mr. E. W. Janson exhibited two new, or recently detected, species of Coleoptera, captured by the Rev. A. Matthews, as follows:—"THROSCUS CARINIFRONS, de Bonvouloir, Essai Monographique sur la Famille des Throscides, p. 20, tab. i. fig. 5 (1859). At first sight resembling T. dermestoides, *L.*, but at once distinguished from it by the ocular depression extending *right across* the eyes; more nearly allied to T. elateroides, *Heer* (T. gracilis? *Woll.*), but readily separated therefrom by its superior size, the prominence of the lateral frontal longitudinal ridges, which extend to the anterior margin of the prothorax, the sinuated sides and prominent posterior angles of the prothorax, especially in the males, and the somewhat finer punctuation of the interstices of the elytra. Three specimens taken by the Rev. A. Matthews, in company with T. dermestoides, by sweeping in a plantation near Chiselhurst, in July, 1869, and shortly after placed in my hands for identification. CRYPHALUS PICEÆ, Ratzeburg, Forst-Insecten, i. p. 163 (1837). Allied to C. Abietis, *Ratzeb.*, but larger, less convex, the elevations on the anterior part of the prothorax larger, and arranged in five or six tolerably regular rows, the striæ of the elytra distinct, and the interstices, especially towards the apex, with sparse erect yellow bristles. One specimen taken by the Rev. A. Matthews, many years since, in the vicinity of Weston, Oxon.'

[I have purposely omitted the mention of Formica Herculanea as a British insect, because I consider the evidence unsatisfactory, and calculated only to mislead.—*Edward Newman.*]

Death of Mr. Lock.—It is my melancholy duty to record the early death of Mr. George Lock, of the Turkish Baths Newport, Monmouthshire. He caught a violent cold, which induced gastric fever, and terminated fatally on Monday, the 30th of October. He has left a large quantity of British insects, which he has employed many years in collecting and breeding, in which latter occupation he was particularly successful. The destination of his collections has not yet been communicated to me. I have been under much obligation to him, for the promptitude with which he communicated both information and specimens.—*Edward Newman.*

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